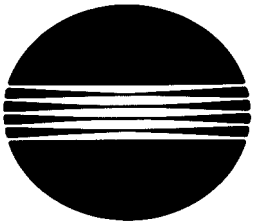
EP6000

GENERAL, MECHANICAL/ ELECTRICAL



MINOLTA

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1 SAFETY INFORMATION

(ALL Areas)

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type
recommended by the manufacturer.
Dispose of used batteries according
to the manufacturer's instructions.

(Denmark only)

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

(Norway only)

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende
type anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens
instruksjoner.

(Sweden only)

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

(Finland only)

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä Käytetty paristo valmistajan ohjeiden
mukaisesti.

2 TECHNICAL HIGHLIGHTS

This copier has the following mechanical features.

- The original is aligned at the rear corner, while the copy paper is fed through the center of the copier.
- Three fusing heater lamps are used, which enables the copier to complete warming up in less than 5 minutes. (For details, see p. M-164.)
- All original size detecting sensors are fixed, enhancing measuring accuracy. (For details, see p. M-54.)
  * The copier becomes capable of detecting both the metric and inch original sizes when equipped with the optional original size detecting sensors.
- The paper take-up retry control minimizes the occurrence of paper misfeeds. (For details, see p. M-124.)

The copier has the following control features.

- The watchdog (CPU overrun monitor) function monitors the operation of the CPUs mounted in the copier and, if a CPU overrun is detected, it automatically resets the faulty CPU, restarting the logic circuit and mechanism. (For details, see p. M-11.)
- The malfunction bypass function minimizes downtime when the copier develops a malfunction. (For details, see p. M-14.)
- The image stabilization system stabilizes the copy image. (For details, see p. M-16.)

3 SPECIFICATIONS

TYPE	: Console
PLATEN	: Stationary
PHOTOCONDUCTOR	: Organic Photoconductor
COPYING SYSTEM	: Electrostatic dry powdered image transfer to plain paper
PAPER FEEDING SYSTEM	: 4-way system - Multi Bypass Table: 50 sheets of paper - 1st and 2nd Drawer: Each holding up to 500 sheets of paper - 3rd Drawer: Holding up to 2,500 sheets of paper
EXPOSURE SYSTEM	: Mirror scanning, slit exposure
DEVELOPING SYSTEM	: New Micro-Toning system
CHARGING SYSTEM	: Double-wire DC negative corona with Scorotron system
IMAGE TRANSFER SYSTEM	: Visible image transfer by means of a single-wire DC negative corona with Corotron system
PAPER SEPARATING SYSTEM	: Single-wire AC corona with Corotron system (AC plus DC positive bias voltage) plus PC Drum Paper Separator Fingers
OZONE REMOVAL	: By means of Ozone Filter
FUSING SYSTEM	: Heat Roller
PAPER DISCHARGING SYSTEM	: Charge Neutralizing Brush
TYPES OF ORIGINALS	: Sheets, books, and other three-dimensional objects weighing up to 3 kg or 6-1/2 lbs.
MAXIMUM ORIGINAL SIZE	: A3 or 11" × 17" lengthwise

COPY MEDIUM:

Paper Source		1st to 2nd Drawer	3rd Drawer	Multi Bypass Table
Medium	Plain paper (60 to 90 g/m^2)	O	O	O
	Translucent paper	—	—	☐
	Transparencies	—	—	☐
	Thick paper (90 to 157 g/m^2)	—	—	☐
	Recycled paper	O	O	O
Dimensions	Maximum (Width × Length)	297 × 432 mm	A4C	297 × 432 mm
	Minimum (Width × Length)	140 × 182 mm	8-1/2"×11"C	100 × 140 mm

O: Permissible —: Not permissible ☐: Conditionally permissible ... 20 sheets or less
L: Lengthwise, C: Crosswise

WARMING-UP TIME : 5 min. or less (with ambient temperature of 23°C or 73°F and rated source voltage)

WARMING-UP TIME AFTER ENERGY SAVER MODE : 30 sec. or less (with ambient temperature of 23°C or 73°F and rated source voltage)

AUTO CLEAR TIME : Standard 1 min. (setting selectable from among 2, 3, and 5 min.)

FIRST COPY TIME : A4C or 8-1/2" × 11"C (Full size, fed from 1st Drawer): 3.8 sec. or less

COPY SPEED : Full size

Metric Area

Size	copies/min.
A3L	31
B4L	40
A4L	47
A4C	60
B5L	52
B5C	60

Inch Area

Size	copies/min
11" × 17"	31
8-1/2" × 11"L	50
8-1/2" × 11"C	60

L: Lengthwise; C: Crosswise

MULTIPLE COPIES : 1 to 999 copies (count-down system)

ZOOM RATIOS

	Area / Mode	Metric	Inch
Fixed	Full Size	×1.000	×1.000
	Reduction	×0.816 ×0.707 ×0.500	×0.785 ×0.733 ×0.647 ×0.500
	Enlargement	×2.000 ×1.414 ×1.154	×2.000 ×1.545 ×1.294 ×1.214
Variable	×0.500 to ×2.000 (in 0.001 increments)		

LENS : Through Lens (F=5.6, f=215 mm)

LIGHT SOURCE : Halogen frost tube lamp

FUSING TEMPERATURE : 190°C (in copy cycle and standby)
: 180°C (in Energy Saver mode)

POWER/CURRENT CONSUMPTION : Copier with full set of options

Voltage	Exposure Lamp (Rating)	Fusing Roller Heater Lamp (Rating)	Max. Power Consumption	Power Consumption in Standby
115 V	90 V 220 W	115 V 900 W	1320 W	1070 W
120,127 V	90 V 220 W	120,127 V 900W	1370 W	1070 W
200~220 V	160 V 250 W	200/220 V 1040 W	1620~1790 W	1330 W
220~240 V	160 V 250 W	200/220 V 1040 W	1590~1740 W	1330 W

POWER REQUIREMENTS : 115V, 120V, 127V, 200V, 220V, 230V, 240V; 50/60 Hz

ENVIRONMENTAL CONDITIONS :

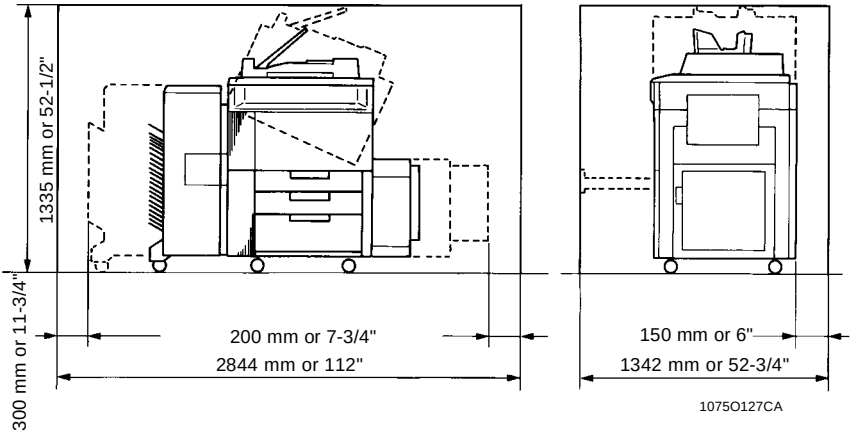
Temperature	Humidity	Ambient Illumination	Levelness
10 to 35°C (50 to 95°F) with a fluctuation of 10°C or less per hour	15 to 85% RH with a fluctuation of 20% RH or less per hour	3,000 lux or less	1° (1.75/100)

DIMENSIONS	:	Copier only Width .... 746 mm or 29-1/4" Depth .... 720 mm or 28-1/4" Height ... 969 mm or 38-1/4"
WEIGHT	:	195 kg or 430 lbs. (including the Duplexing Document Feeder and PC Drum)
STANDARD ACCESSORIES	:	Duplexing Document Feeder AFR-9, Toner Collecting Bottle, Operator's Manual, Starter, PC Drum
OPTIONS	:	Large Capacity Cassette C-302 Exit Tray 20-Bin Sorter S-206 Staple Sorter ST-207 Data Controller DT-103 Data Controller D-102 Plug-In Counter Bias Seal Original Cover

4 SPACE REQUIREMENTS

To ensure easy copier operation, supply replacement, and service maintenance, adhere to the recommended space requirements detailed below.

* Be sure to allow a clearance of 150 mm (6") or more at the back of the copier as there is a ventilation duct.



5 PRECAUTIONS FOR INSTALLATION

Installation Site

To ensure safety and utmost performance of the copier, the copier should NOT be used in a place:

- Where it will be subjected to extremely high or low temperature or humidity.
- Which is exposed to direct sunlight.
- Which is in the direct air stream of an air conditioner, heater or ventilator.
- Which puts the operator in the direct stream of exhaust from the copier.
- Which has poor ventilation.
- Where ammonia gas might be generated.
- Which does not have a stable, level floor.
- Where it will be subject to sudden fluctuations in either temperature or humidity. If a cold room is quickly heated, condensation forms inside the copier, resulting in blank spots in the copy.
- Which is near any kind of heating device.
- Where it may be splashed with water.
- Which is dirty or where it will receive undue vibration.
- Which is near volatile flammables or curtains.

Power Source

Use an outlet with a capacity of 115/120/127V, 12A or more, or 200/220/230/240V, 8.5A or more.

- If any other electrical equipment is sourced from the same power outlet, make sure that the capacity of the outlet is not exceeded.
- Use a power source with little voltage fluctuation.
- Never connect by means of a multiple socket any other appliances or machines to the outlet being used for the copier.
- Make the following checks at frequent intervals:
  - Is the power plug abnormally hot?
  - Are there any cracks or scrapes in the cord?
  - Has the power plug been inserted fully into the outlet?
  - Does something, including the copier itself, ride on the power cord?
- Ensure that the copier does not ride on the power cord or communications cable of other electrical equipment, and that it does not become wedged into or underneath the mechanism.

Grounding

To prevent receiving electrical shocks in the case of electrical leakage, always ground the copier.

- Connect the grounding wire to:
  - The ground terminal of the outlet.
  - A grounding contact which complies with the local electrical standards.
- Never connect the grounding wire to a gas pipe, the grounding wire for a telephone, or a water pipe.

6 PRECAUTIONS FOR USE

To ensure that the copier is used in an optimum condition, observe the following precautions.

- Never place a heavy object on the copier or subject the copier to shocks.
- Insert the power plug all the way into the outlet.
- Do not attempt to remove any panel or cover which is secured while the copier is making copies.
- Do not turn OFF the Power Switch while the copier is making copies.
- Provide good ventilation when making a large number of copies continuously.
- Never use flammable sprays near the copier.
- If the copier becomes inordinately hot or produces abnormal noise, turn it OFF and unplug it.
- Do not turn ON the Power Switch at the same time when you plug the power cord into the outlet.
- When unplugging the power cord, do not pull on the cord; hold the plug and pull it out.
- Do not bring any magnetized object near the copier.
- Do not place a vase or vessel containing water on the copier.
- Be sure to turn OFF the Power Switch at the end of the workday or upon power failure.
- Use care not to drop paper clips, staples, or other small pieces of metal into the copier.

Operating Environment

The operating environmental requirements of the copier are as follows.

- Temperature: 10°C to 35°C (50 to 95°F) with a fluctuation of 10°C per hour
- Humidity: 15% to 85% RH with a fluctuation of 20% RH per hour

Power Requirements

The power source voltage requirements are as follows.

- Voltage Fluctuation: AC115/120/127/200/220/230/240V
  ±10% (Copying performance assured)
  −15% (Paper feeding performance assured)
- Frequency Fluctuation: 50/60 Hz ±0.3%

7 HANDLING OF THE CONSUMABLES

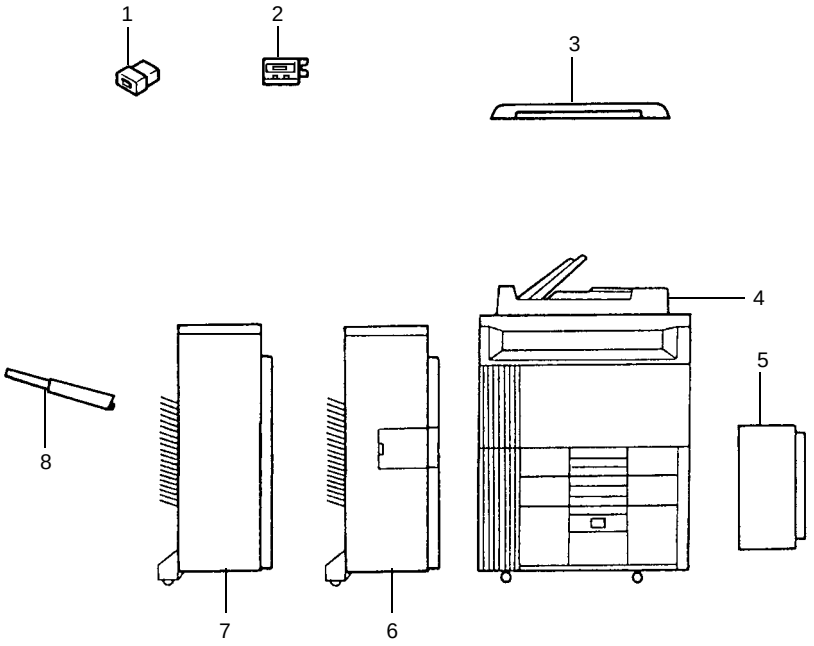
Before using any consumables, always read the label on its container carefully.

- Use the right toner. The applicable copier model name is indicated on the Toner Bottle.
- Paper is apt to be easily damaged by dampness. To prevent absorption of moisture, store paper, which has been removed from its wrapper but not loaded into the Drawer, in a sealed plastic bag in a cool, dark place.
- Keep consumables out of the reach of children.
- Do not touch the PC Drum with bare hands.
- Store the paper, toner, and other consumables in a place free from direct sunlight and away from any heating apparatus.
- The same sized paper is of two kinds, short grain and long grain. Short grain paper should only be fed through the copier crosswise, long grain paper should only be fed lengthwise.
- If your hands become soiled with toner, wash them with soap and water immediately.
- Do not throw away any used consumables (PC Drum, starter, toner, etc.). They are to be collected.

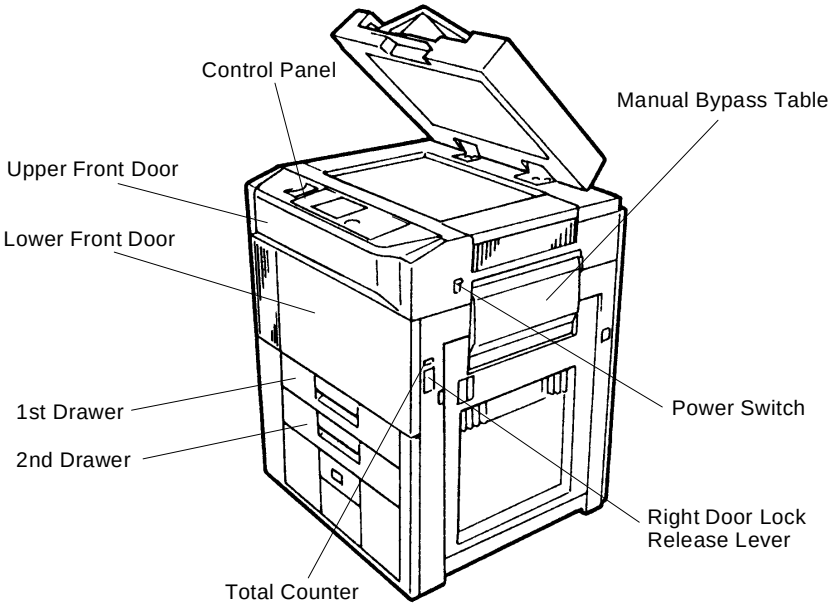
NOTE

Do not burn, bury in the ground, or throw into the water any consumables (PC Drum, starter, toner, etc.).

8 SYSTEM OPTIONS



1. Plug-In Counter
2. Data Controller D-102
3. Original Cover
4. Duplexing Document Feeder AFR-9 <Standard>
5. Large Capacity Cassette C-302
6. Staple Sorter ST-207
7. 20-Bin Sorter S-206
8. Exit Tray



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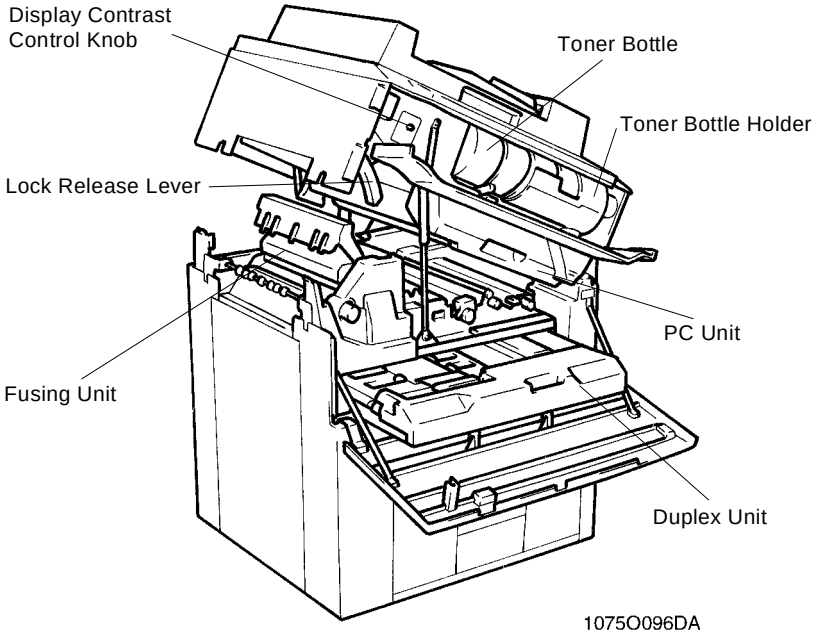

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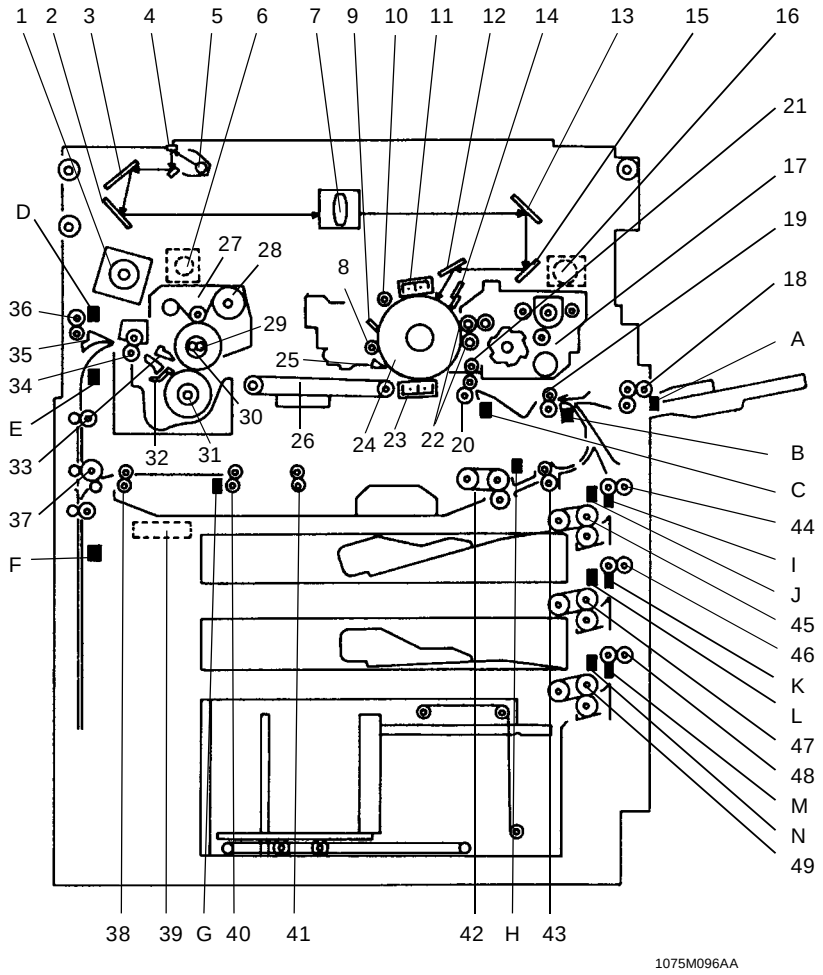
1 CROSS-SECTIONAL VIEW

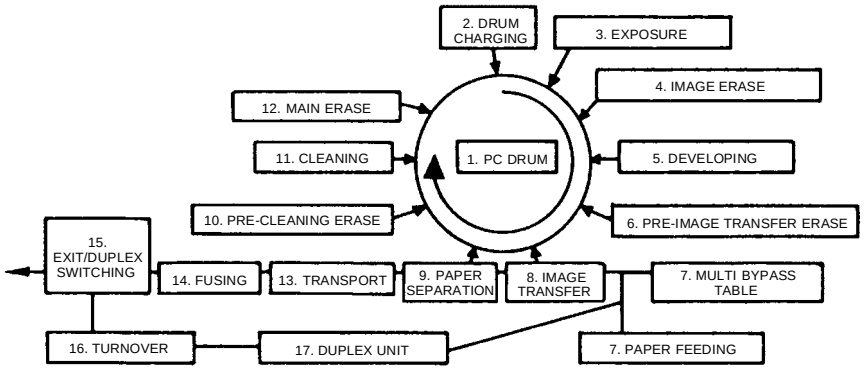


1. Optical Section Cooling Fan Motor M17
2. 3rd Mirror
3. 2nd Mirror
4. 1st Mirror
5. Exposure Lamp LA1
6. Fusing Unit Ventilation Fan Motor M8
7. Lens
8. Pre-Cleaning Erase Lamp LA5
9. Cleaning Blade
10. Main Erase Lamp LA2
11. PC Drum Charge Corona
12. 6th Mirror
13. 4th Mirror
14. Image Erase Lamp LA3
15. 5th Mirror
16. Toner Suction Fan Motor M20
17. Developing Unit
18. Manual Bypass Take-Up Roll
19. Transport Roller
20. Synchronizing Roller
21. Pre-Image Transfer Erase Lamp LA4
22. 1st and 2nd Sleeve/Magnet Rollers
23. Image Transfer/Paper Separator Coronas
24. PC Drum
25. PC Drum Paper Separator Finger
26. Suction Unit
27. Fusing Unit
28. Web Roller
29. Upper Fusing Roller Main Heater Lamp H1
30. Upper Fusing Roller Sub Heater Lamp H2
31. Lower Fusing Roller Heater Lamp H3
32. Lower Fusing Paper Separator Finger
33. Upper Fusing Paper Separator Finger
34. Fusing Unit Transport Roller
35. Exit/Duplexing Switching Plate
36. Paper Exit Roller
37. Turnover/Paddles Roller
38. Turnover Drive Roller
39. Ventilation Fan Motor M19
40. Gate 2 Transport Roller
41. Gate 1 Transport Roller
42. Duplex Paper Take-Up Roll
43. Duplex Vertical Transport Roller
44. Vertical Transport Roller 1
45. 1st Drawer Paper Take-Up Section
46. Vertical Transport Roller 2
47. 2nd Drawer Paper Take-Up Section
48. Vertical Transport Roller 3
49. 3rd Drawer Paper Take-Up Section

- Misfeed Sensors -

A. Manual Feed Paper Empty Sensor PC28
B. Transport Roller Sensor PC26
C. Paper Leading Edge Sensor PC27
D. Paper Exit Sensor PC36
E. Transport Feed Sensor PC37
F. Duplex Unit Turnover Path Sensor PC39
G. Duplex Unit Paper Entry Sensor PC38
H. Duplex Unit Paper Take-Up Sensor PC40
I. Vertical Transport Sensor 1 PC10
J. 1st Drawer Paper Take-Up Sensor PC6
K. Vertical Transport Sensor 2 PC11
L. 2nd Drawer Paper Take-Up Sensor PC7
M. Vertical Transport Sensor 3 PC12
N. 3rd Drawer Paper Take-Up Sensor PC8

2 COPY PROCESS



1075M102AB

1. PC Drum

The PC Drum is an aluminum cylinder coated with a photosensitive semiconductor. It is used as the medium on which a visible developed image of the original is formed.
(For more details, see p. M-25.)

2. Drum Charging

The PC Drum Charge Corona Unit is equipped with two corona wires and Scorotron Grids to deposit a uniform negative charge across the entire surface of the PC Drum.
(For more details, see p. M-28.)

3. Exposure

Light from the Exposure Lamp reflected off the original is guided to the surface of the PC Drum and reduces the level of the negative charges, thereby forming an electrostatic latent image.
(For more details, see p. M-34.)

4. Image Erase

Any areas of charge which are not to be developed are neutralized by lighting up LEDs.
(For more details, see p. M-62.)

5. Developing

Toner positively charged in the Developer Mixing Chamber is attracted onto the electrostatic latent image changing it to a visible, developed image.
(For more details, see p. M-69.)

6. Pre-Image Transfer Erase

Light from the Pre-Image Transfer Erase Lamp striking the surface of the PC Drum improves image transfer and paper separation efficiency.
(For more details, see p. M-93.)

7. Paper Feeding

Paper is fed from each drawer or Multi Bypass Table.
(For more details, see p. M-95.)

8. Image Transfer

The single-wire Image Transfer Corona Unit applies a DC negative corona emission to the underside of the paper, thereby attracting toner onto the surface of the paper.
(For more details, see p. M-143.)

9. Paper Separation

The single-wire Paper Separator Corona Unit applies an AC corona emission [AC + DC(+) bias voltage] to the underside of the paper to neutralize the paper.
(For more details, see p. M-143.)
In addition, mechanical paper separation is provided by the three PC Drum Paper Separator Fingers.
(For more details, see p. M-155.)

10. Pre-Cleaning Erase

Light from the Pre-Cleaning Erase Lamp striking the surface of the PC Drum reduces surface potential, thereby preventing toner accumulated on the back of the Cleaning Blade from sticking to the surface of the PC Drum.
(For more details, see p. M-154.)

11. Cleaning

Residual toner on the surface of the PC Drum is scraped off by the Cleaning Blade and conveyed to the Toner Collecting Bottle.
(For more details, see p. M-150.)

12. Main Erase

Light from the Main Erase Lamp neutralizes any surface potential remaining on the surface of the PC Drum after cleaning.
(For more details, see p. M-160.)

13. Transport

The paper is fed to the Fusing Unit by the Suction Belts.
(For more details, see p. M-162.)

14. Fusing

The developed image is permanently fused to the paper by a combination of heat and pressure applied by the Upper and Lower Fusing Rollers.
(For more details, see p. M-164.)

15. Exit/Duplex Switching

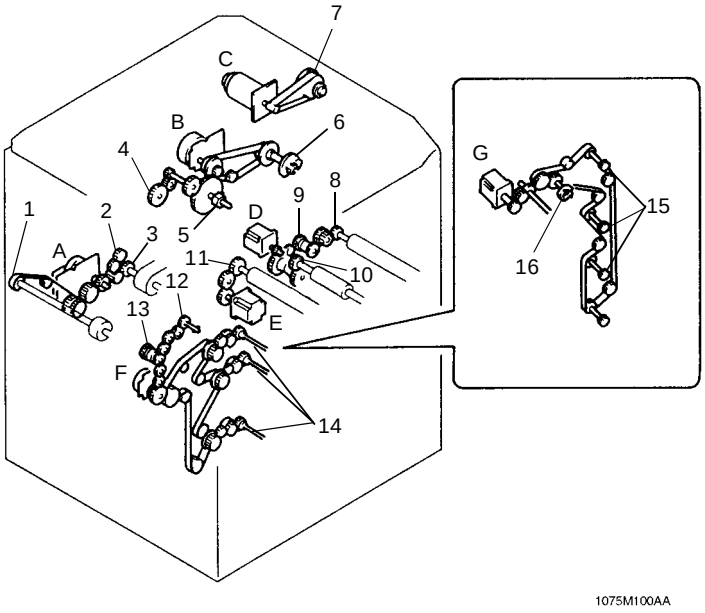
After the fusing process the paper is either fed out onto the Exit Tray or down into the turnover mechanism of the Duplex Unit.
(For more details, see p. M-178.)

16. Turnover

The 1-sided copy is turned over and fed into the Duplex Unit.
(For more details, see p. M-181.)

17. Duplex Unit

The 1-sided copies are stored and then taken up one by one for the second copy cycle.
(For more details, see p. M-186.)


7
C
B
6
4
8
9
D
1
2
3
5
A
11
10
12
13
E
F
14
G
15
16
1075M100AA

A = Fusing Motor M6: Drives the Fusing Unit, Paper Exit Roller, and Suction Belts.

1. Paper Exit Roller drive pulley
2. Fusing Unit drive gear
3. Suction Belt drive gear

B = PC Drum Drive Motor M5: Drives the PC Drum, Developing Unit, and Toner Conveying Screw.

4. Toner Conveying Screw drive gear
5. PC Drum drive coupling pawl A
6. Developing Unit drive coupling gear 2

C = Scanner Motor M11: Drives the Scanner and 2nd/3rd Mirrors Carriage.

7. Scanner drive pulley

D = Transport Motor M3: Drives the Transport Roller and Multi Bypass Take-Up mechanism.

8. Multi Bypass Take-Up drive gear
9. Multi Feed Paper Take-Up Clutch CL5
10. Transport Roller drive gear

E = Synchronizing Motor M4: Drives the Synchronizing Roller

11. Synchronizing Roller drive gear

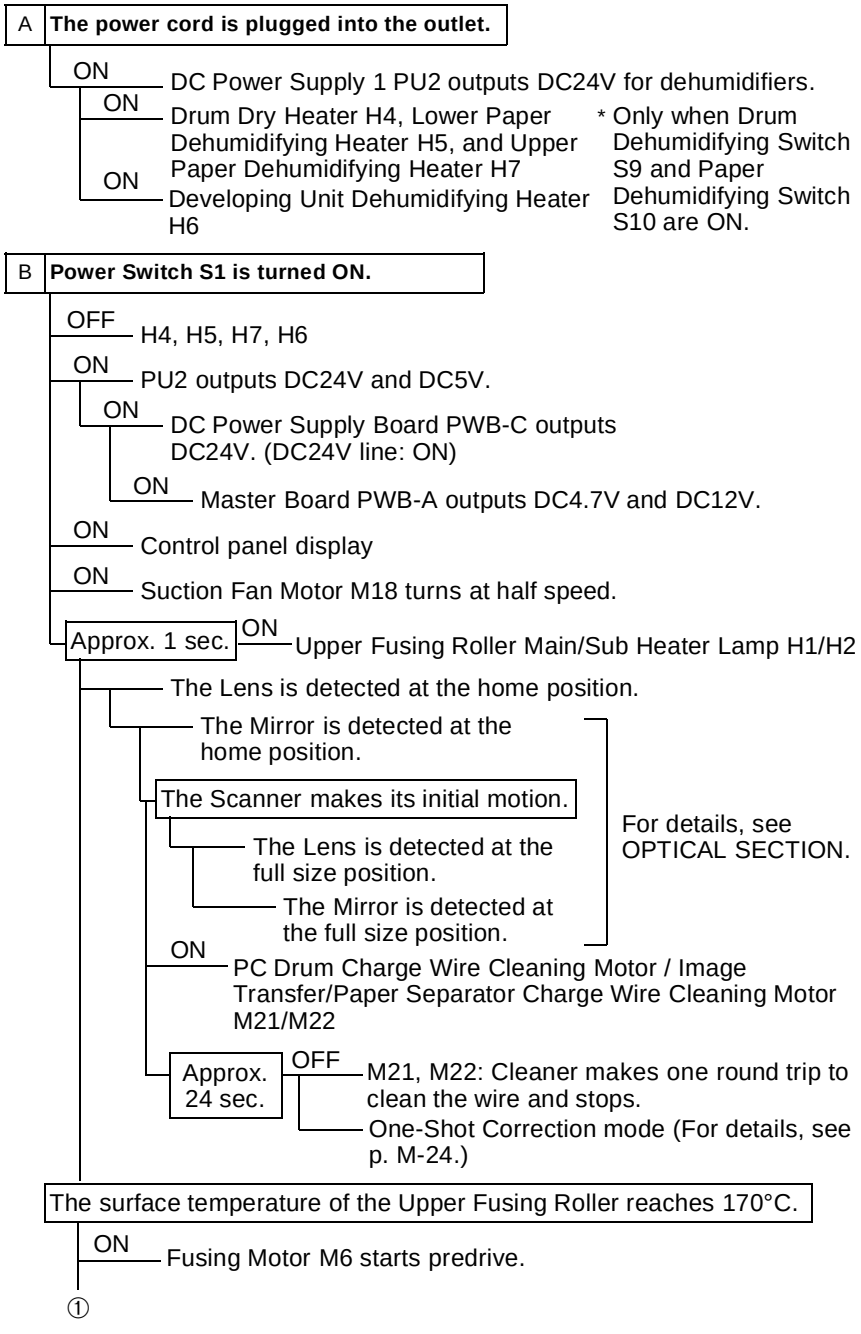
F = Paper Take-Up Motor M1: Drivers the Paper Take-Up mechanism and the Duplex Take-Up mechanism.

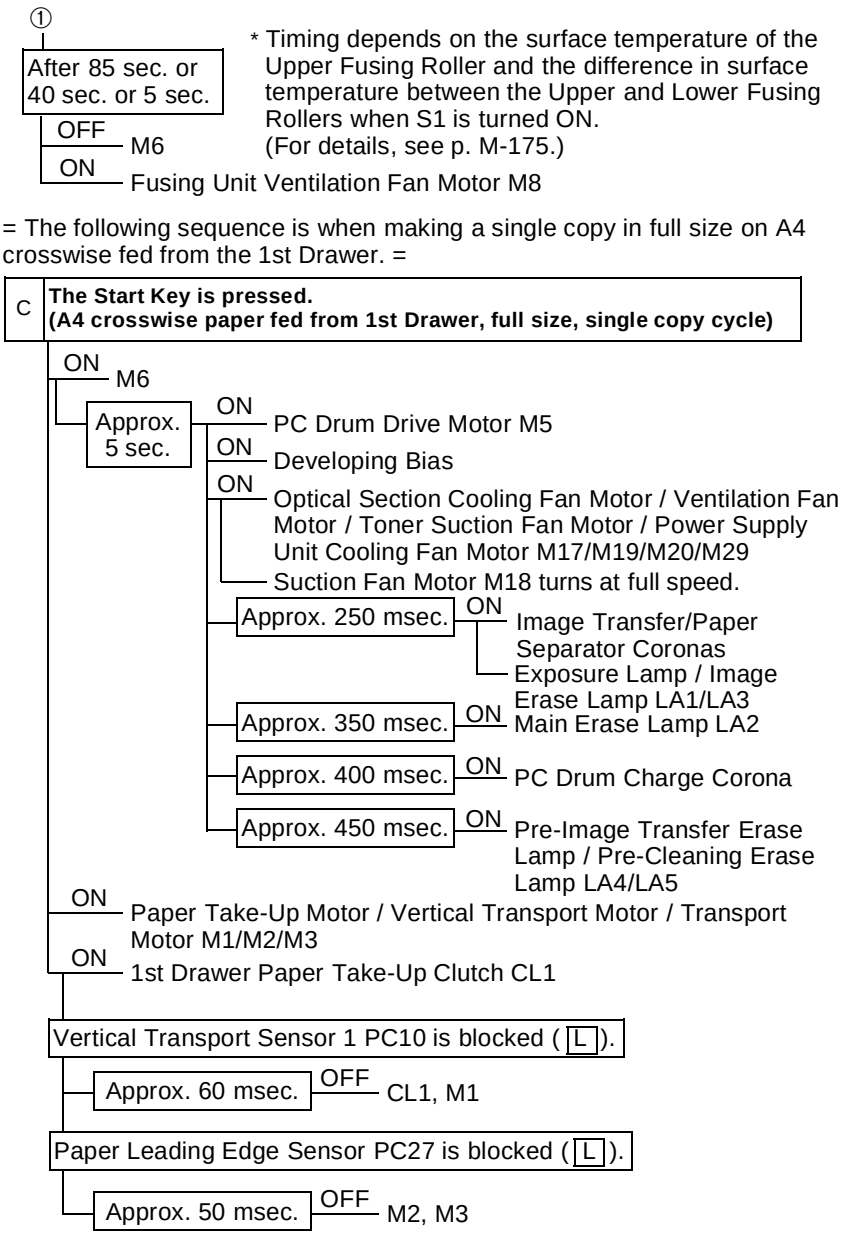
12. Duplex Take-Up mechanism drive gear
13. Duplex Unit Paper Take-Up Clutch CL6
14. Paper Take-Up Clutch for drawers CL1 to 3

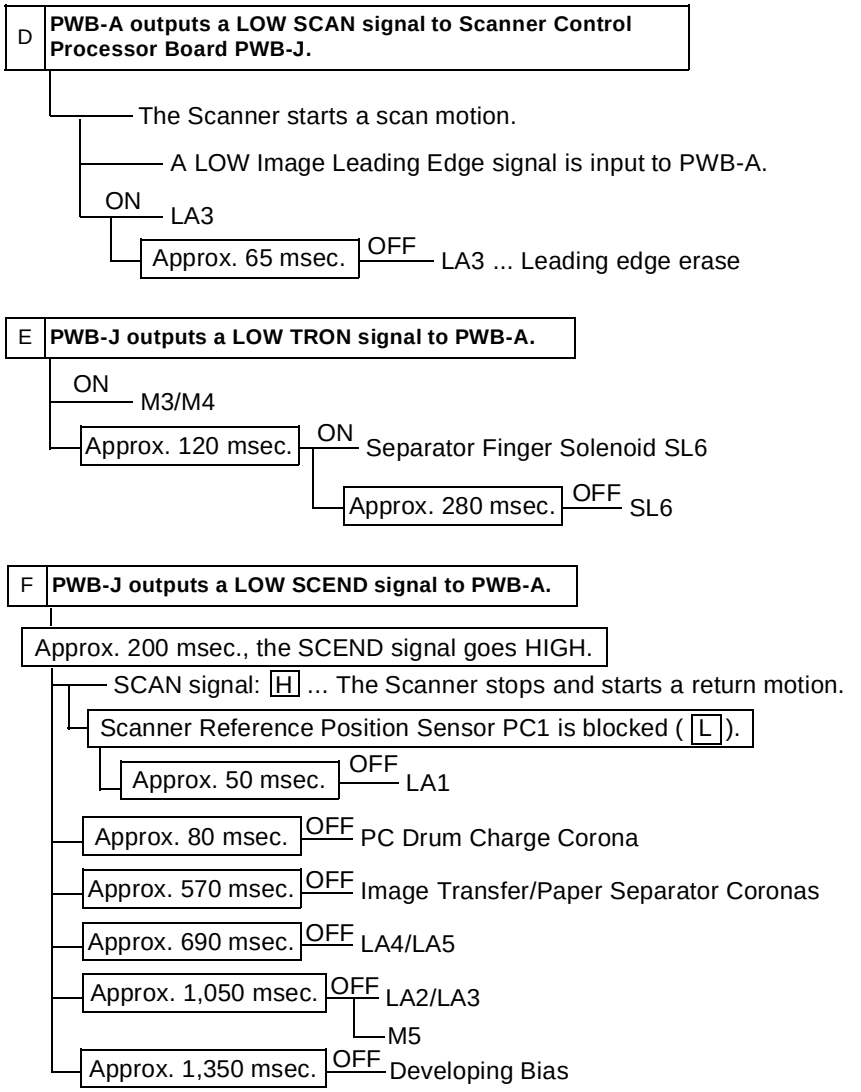
G = Vertical Transport Motor M2 = Drives the Vertical Transport Rollers and Duplex Vertical Transport Rollers.

15. Vertical Transport Roller drive gear
16. Duplex Vertical Transport Roller drive gear

4 SEQUENTIAL EXPLANATION


A The power cord is plugged into the outlet.
ON
DC Power Supply 1 PU2 outputs DC24V for dehumidifiers.
ON
Drum Dry Heater H4, Lower Paper Dehumidifying Heater H5, and Upper Paper Dehumidifying Heater H7
ON
Developing Unit Dehumidifying Heater H6
* Only when Drum Dehumidifying Switch S9 and Paper Dehumidifying Switch S10 are ON.
B Power Switch S1 is turned ON.
OFF
H4, H5, H7, H6
ON
PU2 outputs DC24V and DC5V.
ON
DC Power Supply Board PWB-C outputs DC24V. (DC24V line: ON)
ON
Master Board PWB-A outputs DC4.7V and DC12V.
ON
Control panel display
ON
Suction Fan Motor M18 turns at half speed.
Approx. 1 sec.
ON
Upper Fusing Roller Main/Sub Heater Lamp H1/H2
The Lens is detected at the home position.
The Mirror is detected at the home position.
The Scanner makes its initial motion.
The Lens is detected at the full size position.
The Mirror is detected at the full size position.
For details, see OPTICAL SECTION.
ON
PC Drum Charge Wire Cleaning Motor / Image Transfer/Paper Separator Charge Wire Cleaning Motor M21/M22
Approx. 24 sec.
OFF
M21, M22: Cleaner makes one round trip to clean the wire and stops.
One-Shot Correction mode (For details, see p. M-24.)
The surface temperature of the Upper Fusing Roller reaches 170°C.
ON
Fusing Motor M6 starts predrive.
①


①
After 85 sec. or 40 sec. or 5 sec.
OFF
M6
ON
Fusing Unit Ventilation Fan Motor M8
* Timing depends on the surface temperature of the Upper Fusing Roller and the difference in surface temperature between the Upper and Lower Fusing Rollers when S1 is turned ON. (For details, see p. M-175.)
= The following sequence is when making a single copy in full size on A4 crosswise fed from the 1st Drawer. =
C
The Start Key is pressed.
(A4 crosswise paper fed from 1st Drawer, full size, single copy cycle)
ON
M6
Approx. 5 sec.
ON
PC Drum Drive Motor M5
ON
Developing Bias
ON
Optical Section Cooling Fan Motor / Ventilation Fan Motor / Toner Suction Fan Motor / Power Supply Unit Cooling Fan Motor M17/M19/M20/M29
Suction Fan Motor M18 turns at full speed.
Approx. 250 msec.
ON
Image Transfer/Paper Separator Coronas
Exposure Lamp / Image Erase Lamp LA1/LA3
Approx. 350 msec.
ON
Main Erase Lamp LA2
Approx. 400 msec.
ON
PC Drum Charge Corona
Approx. 450 msec.
ON
Pre-Image Transfer Erase Lamp / Pre-Cleaning Erase Lamp LA4/LA5
ON
Paper Take-Up Motor / Vertical Transport Motor / Transport Motor M1/M2/M3
ON
1st Drawer Paper Take-Up Clutch CL1
Vertical Transport Sensor 1 PC10 is blocked (L).
Approx. 60 msec.
OFF
CL1, M1
Paper Leading Edge Sensor PC27 is blocked (L).
Approx. 50 msec.
OFF
M2, M3


D
PWB-A outputs a LOW SCAN signal to Scanner Control Processor Board PWB-J.
The Scanner starts a scan motion.
A LOW Image Leading Edge signal is input to PWB-A.
ON
LA3
Approx. 65 msec.
OFF
LA3 ... Leading edge erase
E
PWB-J outputs a LOW TRON signal to PWB-A.
ON
M3/M4
Approx. 120 msec.
ON
Separator Finger Solenoid SL6
Approx. 280 msec.
OFF
SL6
F
PWB-J outputs a LOW SCEND signal to PWB-A.
Approx. 200 msec., the SCEND signal goes HIGH.
SCAN signal: H ... The Scanner stops and starts a return motion.
Scanner Reference Position Sensor PC1 is blocked (L).
Approx. 50 msec.
OFF
LA1
Approx. 80 msec.
OFF
PC Drum Charge Corona
Approx. 570 msec.
OFF
Image Transfer/Paper Separator Coronas
Approx. 690 msec.
OFF
LA4/LA5
Approx. 1,050 msec.
OFF
LA2/LA3
M5
Approx. 1,350 msec.
OFF
Developing Bias

G **The trailing edge of the paper moves past Transport Roller Sensor PC26 (unblocked: H).**

- Approx. 144 msec. — OFF — M3

H **The trailing edge of the paper moves past Paper Leading Edge Sensor PC27 (unblocked: H).**

- Approx. 90 msec. — OFF — Synchronizing Motor M4

I **The trailing edge of the paper moves past Paper Exit Sensor PC36 (unblocked: H).**

- Approx. 600 msec. — OFF — M6
- Approx. 4,600 msec. — OFF — M17/M19/M20/M29
  - M18 turns at half speed.

5 WATCHDOG (CPU OVERRUN MONITOR) FUNCTION

5-1. Overview

The watchdog function monitors whether any of the CPUs mounted in the copier overrun. If this function detects that a CPU overruns, the copier automatically resets the CPU, thereby restarting the logic circuit and mechanism.

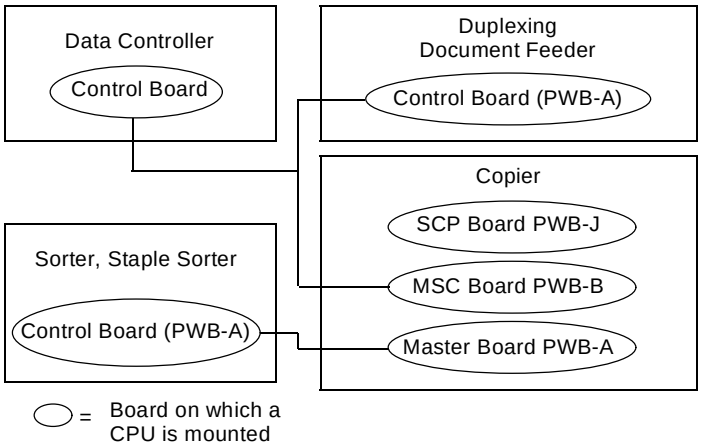
Even if a copier CPU operates erratically due to electrical noise, therefore, the copier is able to recover from the faulty condition so that the number of visits made by the Technical Representative for CPU overrun can be minimized.

5-2. Configuration

The copier has three printed-circuit boards each on which a CPU is mounted:
* SCP (Scanner Control Processor) Board PWB-J that controls the optical system;
* MSC (Macro System Controller) Board PWB-B that controls the control panel and system; and,
* Master Board PWB-A.

In addition to these, each of the control boards for the Data Controller, Duplexing Document Feeder, and Sorter/Staple Sorter is equipped with a CPU.

The watchdog functions are summarized as follows:
* Each of the copier CPUs monitors whether or not it overruns.
* The PWB-B monitors the communications conditions of the CPUs in the Duplexing Document Feeder and Data Controller.
* The PWB-A monitors the communications conditions of the CPUs in the Sorter and Staple Sorter.



5-3. Watchdog Function Post-Processing

The following processing is performed if a faulty condition is detected in the CPU. The Watchdog Counter available from the Tech. Rep. mode allows the Technical Representative to check if any faulty condition has occurred in the CPU. For details, see SWITCHES ON PWBs.

Faulty CPU	Processing (in Standby)	Processing (during Copy Cycle)
Copier	1 : The CPU is automatically reset (i.e., shutting down power to all CPUs including those in the options) as soon as a faulty CPU is detected.	1: Same as 1 on the left. 2: Since the paper is left inside the copier, the copier detects a misfed sheet of paper or two when power is turned ON again. If the MSC CPU is faulty, however, all paper in line for the exit will be ejected and all paper headed to the duplex will be stored, before restarting the CPU.
Sorter, Staple Sorter	1 : When the CPU malfunctions, the communication to Master Board PWB-A of the copier is cut off or faulty data is transmitted to the PWB-A. 2 : The PWB-A detects that the CPU of the Sorter or Staple Sorter is faulty. 3 : The PWB-A notifies MSC Board PWB-B that the CPU of the Sorter or Staple Sorter is faulty. 4 : As commanded by the PWB-B, Option Relays RY3C and 4C are turned OFF and ON to restart the option. 5 : The communication line from the CPU of the Sorter or Staple Sorter to PWB-A is recovered. 6 : PWB-A notifies PWB-B that the CPU of the Sorter or Staple Sorter has recovered from the faulty condition.	1 : Same as 1, 2, and 3 on the left. 2 : The paper take-up sequence is stopped. 3 : All sheets of paper being fed through the copier are fed out of the copier. 4 : Same as 4, 5, and 6 on the left.

Faulty CPU	Processing (in Standby)	Processing (during Copy Cycle)
Other than above	1 : When the CPU malfunctions, the communication to MSC Board PWB-B of the copier is cut off or faulty data is transmitted to the PWB-B. 2 : PWB-B detects that the CPU malfunctions. 3 : As commanded by the PWB-B, Option Relays RY3C and 4C are turned OFF and ON to restart the option. 4 : The communication line from the CPU to PWB-B is recovered. 5 : PWB-B detects that the CPU has recovered from the faulty condition.	1 : Same as 1 and 2 on the left. 2 : The paper take-up sequence is stopped. 3 : All sheets of paper being fed through the copier are fed out of the copier. 4 : Same as 3, 4, and 5 on the left.

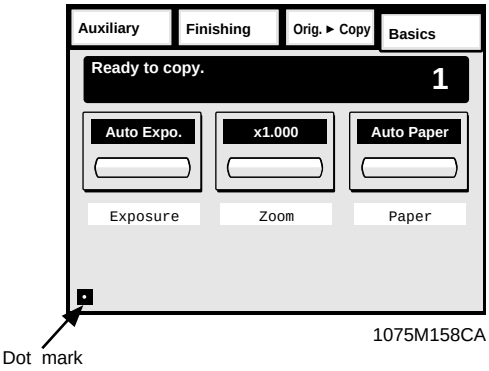
6 MALFUNCTION BYPASS FUNCTION

6-1. Overview of the Malfunction Bypass Function

- When a malfunction occurs in the copier, the malfunction bypass function permits the copier to continue operating if that malfunction is any of the predefined candidates for isolated malfunctions and if it will not affect the current copying operations.

- If a copying function involving the isolated malfunction is selected, the message "Selected mode can't be used." appears on the Touch Panel and the copier rejects that function.

- A dot mark " " appears at the location on the Touch Panel shown below when the malfunction bypass function is activated. The isolated malfunctions which have so far occurred can be viewed (malfunction codes are shown; graphic symbols are shown for the Sorter-related malfunctions) by selecting the "Machine status" function on the Tech. Rep. mode menu screen. (For details, see SWITCHES ON PWBs.)



- Up to five isolated malfunctions are shown. When a sixth isolated malfunction occurs, the copier considers it as a normal malfunction, prompting a Tech. Rep. call. (The sixth malfunction is shown on the Touch Panel.)

6-2. Candidates for Isolated Malfunctions

● Copier-Related

	Item	Malfunction Code
1	1st Drawer	C0920/C0924 *1. C0921~23/C0926
2	2nd Drawer	C0910/C0914 *2. C0911~13/C0916
3	3rd Drawer	C0990~96/C0998~9C/C0351/C0352/C0F79
4	Duplex Unit	C0d00/C0d20/C0d50/C0353
5	Auto Paper, Auto Size	C0F02/C0FE1~C0FFF
6	AIDC	C0F20~23

*1, *2 : For Inch Areas only

● Cabinet/Sorter-Related

7	Large Capacity Cassette (C-302)	C09C0/C09C2/C0354/C0374
8	Sorting (S-206, ST-207)	C0b10~13/C0b60~64
9	Stapling (ST-207)	C0b10~13/C0b30/C0b51/C0b60~64
10	Punching (ST-207)	C0b70/C0b71

* The isolated malfunctions as they are related to the Sorter are shown by graphic symbols as shown below. For C0b10 to 13, C0b51, and C0b70, they are handled as isolated malfunctions only when detected during initial motion. They are normal malfunctions if they occur during a copy cycle.

C0b10~13/30/60~64 : 1134M071AA

C0b51 : 1134M072AA

C0b70, 71 : 1134M073AA

7 IMAGE STABILIZATION SYSTEM

7-1. Overview of the Image Stabilization System

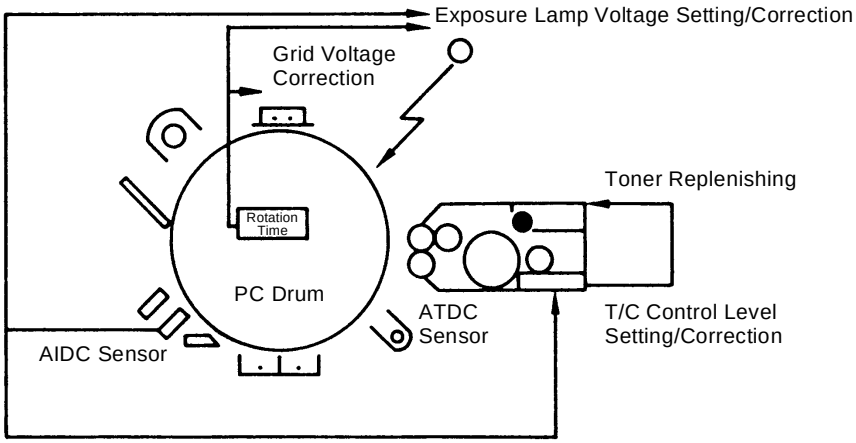
◆ **The following image stabilization controls are provided to ensure stabilized copy image.**

Item	Quality	Purpose	Control
Initial Setting	Image density, gradation	To make an initial adjustment of the toner-to-carrier ratio (T/C) control level and optimum Exposure Lamp voltage using the F5 operation.	• After making the variation adjustment and contamination correction for the AIDC Sensor, the copier produces a solid-black and halftone pattern and, through AIDC Sensor control, sets the initial values for the T/C control level and optimum Exposure Lamp voltage.
Regular Correction	Image density	To compensate for any drop in image density due to a deteriorating PC Drum.	• After making the AIDC Sensor contamination correction, the copier produces a solid-black pattern and, through AIDC Sensor control, corrects the T/C control level. • The copier corrects the grid voltage whenever the PC Drum has turned for a given period of time.
	Gradation	To compensate for any drop in the intensity of LA1 light due to a contaminated optical system.	• After making the AIDC Sensor contamination correction, the copier produces a halftone pattern and, through AIDC Sensor control, corrects the optimum Exposure Lamp voltage. • The copier corrects the optimum Exposure Lamp voltage whenever the PC Drum has turned for a given period of time.
	Foggy background	To keep a given T/C of the developer in the Developer Mixing Chamber.	• The copier provides toner replenishing control through ATDC Sensor control. (*1)

Item	Quality	Purpose	Control
One-Shot Correction (When the Power Switch is turned ON)	Image density, gradation	To compensate for any drop in surface potential of the PC Drum when the Power Switch is turned ON in the morning.	• After making the AIDC Sensor contamination correction, the copier produces a halftone pattern and, through AIDC Sensor control, corrects the optimum Exposure Lamp voltage.
Correction for Faulty AIDC Sensor	Image density, gradation	To compensate for image density and gradation aggravated by a faulty AIDC Sensor.	• The copier corrects the grid voltage and optimum Exposure Lamp voltage according to the time over which the PC Drum has turned.

*1: See pp. M-77 of "DEVELOPMENT UNIT."

(According to Halftone Pattern Density)



(According to Solid-Black Pattern Density)

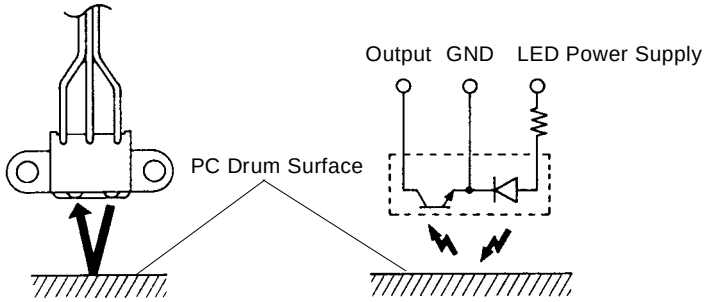
1075M101AA

7-2. AIDC Sensor

To provide image stabilization control, this copier has AIDC Sensor UN9 fitted to the Cleaning Unit of the PC Unit. The sensor is used to detect the toner density and background level on the PC Drum.

Theory of Operation

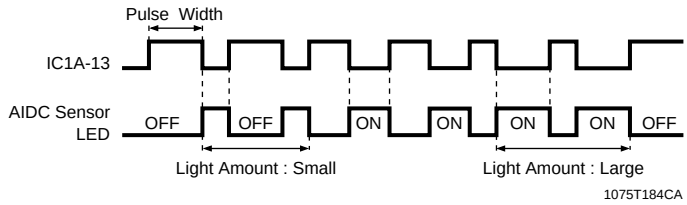
1. The UN9's LED projects approx. 940-nm infrared light onto the surface of the PC Drum.
2. The UN9's phototransistor detects the amount of light reflected back.
3. The phototransistor outputs a voltage corresponding to the intensity of the light reflected back.



1136M068AA

Toner Density	Reflected Light	Output
High	Small	High
Low	Large	Low

The AIDC Sensor LED is turned ON or OFF by the pulse signal output from pin 13 of IC1A on Master Board PWB-A. The intensity of the light emitted by the LED is controlled by varying the pulse width as shown below.



1075T184CA

7-3. AIDC Sensor Control

◆ **There are five processes performed as the AIDC Sensor control:**

① AIDC Sensor variation adjustment
② AIDC Sensor contamination correction
③ T/C control level setting (correction)
④ Optimum Exposure Lamp voltage setting (correction)
⑤ AE Sensor gain adjustment

◆ **Control of Each Process**

① **AIDC Sensor Variation Adjustment**

This adjustment corrects part-to-part variations in the AIDC Sensor (installation, sensitivity, deterioration, etc.). Pin 79 of IC1A on Master Board PWB-A receives the output from the AIDC Sensor and from the 4-bit analog switch. The AIDC Sensor variations are corrected by selecting the output of the 4-bit analog switch (i.e., changing the load resistance). The 4-bit analog switch output is variable in 16 different steps.

Control

The AIDC Sensor LED is turned ON to illuminate the erased surface on the PC Drum.

↓

The maximum 4-bit analog switch output is selected (i.e., the minimum load resistance).

↓

The sensor LED is illuminated with its maximum intensity.

↓

The input to pin 79 of IC1A at this time is sampled.

↓

Repeated:
The sensor LED is illuminated with its minimum intensity.

↓

The input to pin 79 of IC1A at this time is sampled. ... A

↓

The 4-bit analog switch output is switched one step.

↓

The 4-bit analog switch position is fixed when the voltage of A exceeds 1.1V for the first time.

② **AIDC Sensor Contamination Correction**

If the Sensor is dirty with toner, it results in an error being produced in the AIDC Sensor output value. The intensity of the AIDC Sensor LED light is therefore varied.

Control

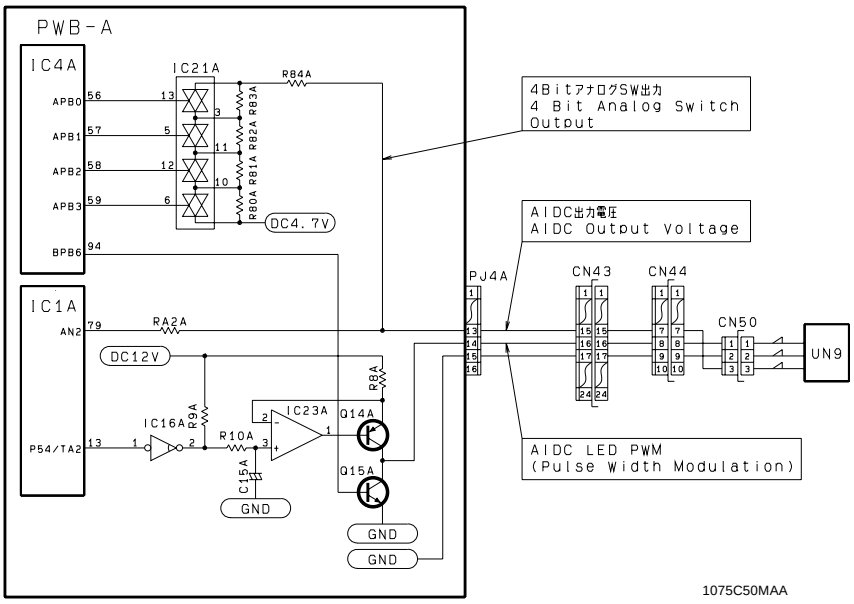
The AIDC Sensor LED is turned ON to illuminate the erased surface on the PC Drum.

↓

The input to pin 79 of IC1A at this time is sampled.

↓

The intensity of the AIDC Sensor LED light is varied so that the above voltage becomes 1.0V. The pulse signal (pulse width) is selected when the voltage is more than 1.0V and its deviation from 1.0V is the smallest.


PWB-A
IC4A
APB0
APB1
APB2
APB3
BPB6
IC21A
R84A
R83A
R82A
R81A
R80A
DC4.7V
4Bitアナログ SW出力
4 Bit Analog Switch Output
AIDC出力電圧
AIDC Output Voltage
PJ4A
CN43
CN44
CN50
UN9
IC1A
AN2
RA2A
DC12V
R8A
IC16A
R9A
IC23A
Q14A
P54/TA2
R10A
C15A
Q15A
GND
GND
GND
AIDC LED PWM
(Pulse Width Modulation)
1075C50MAA

③ **T/C Control Level Setting (Correction)**

The copier produces a solid-black pattern on the PC Drum and the AIDC Sensor reads the image density (ID) of the pattern. If the ID reading is found to fall outside the specified range, the copier increases or decreases the T/C control level by 0.5%.

Control

The intensity of the AIDC Sensor LED light is set to a level three times as strong as the normal one and grid voltage (V_G) is output at a level 45V lower than usual.

↓

With the Exposure Lamp turned OFF, the Image Erase Lamp is kept OFF for a given period of time to produce a solid-black pattern.

↓

The input to pin 79 of IC1A at this time is sampled. ... A

↓

The AIDC Sensor LED light intensity and V_G are returned to the normal level.

↓

The T/C control level is set as follows according to the voltage of A.

Voltage A	T/C Control Level
4.3V or higher	0.5% lower
4.1 to 4.3V	As is (5% if upon setting-up)
4.1V or lower	0.5% higher (Auxiliary toner replenishing is carried out for about 60 sec. upon F5 operation.)

④ **Optimum Exposure Lamp Voltage Setting (Correction)**

The copier produces a halftone pattern on the PC Drum and the AIDC Sensor reads the ID of the pattern. The copier adjusts the Exposure Lamp voltage (V_L) to obtain a good ID.

The following four different types of controls are provided for the optimum Exposure Lamp voltage correction. Control (3) is not provided if the input to pin 79 of IC1A is outside the specified range (3.85 to 4.45V) as checked through the T/C control level setting performed immediately before control (3).

(1) The optimum Exposure Lamp voltage is adjusted at the initial setup or when the first F5 operation is run after the PC Drum has been replaced with a new one (the PC Drum counter has been cleared). (The adjustment value should fall within the range 50 to 82V, in 1V increments.)

Control

LA1 is turned ON to illuminate the halftone patch on the back of the Original Width Scale and LA3 is kept OFF for a given period of time to produce a halftone pattern.

↓

The input to pin 79 of IC1A at this time is sampled. ... A

↓

V_L is varied so that voltage A becomes 1.6V or as near 1.6V as possible.

(2) A correction is made when the second or subsequent F5 test operation is run after the Exposure Lamp has been cleaned or "Exp. Lamp Manual Adj." setting of Tech. Rep. Choice changed. [The correction should be in the range between +2 and –4V with respect to the optimum Exposure Lamp voltage set in (1).]

Control

The Exposure Lamp voltage (V_L) is set at a value set in (1) minus 4V.

↓

LA1 is turned ON to illuminate the halftone patch on the back of the Original Width Scale and LA3 is kept OFF for a given period of time to produce a halftone pattern.

↓

The input to pin 79 of IC1A at this time is sampled. ... A

↓

V_L is increased 1V at a time so that voltage A becomes 1.6V or as near 1.6V as possible.

(3) A correction is made of the Exposure Lamp voltage when the Power Switch is turned ON first thing in the morning to compensate for any drop in the surface potential of the PC Drum in the morning (One-shot correction).

(4) A correction is made to compensate for any drop in the intensity of LA1 light occurring due to a contaminated optical system. This is done for every 200 copies made after the Power Switch has been turned ON.

Control for (3) or (4)

With the Exposure Lamp voltage set by (1) or (2) :
LA1 is turned ON to illuminate the halftone patch on the back of the Original Width Scale and LA3 is kept OFF for a given period of time to produce a halftone pattern.

↓

The input to pin 79 of IC1A at this time is sampled. ... A

↓

The Exposure Lamp voltage is corrected as follows according to voltage A.

Voltage A	Exposure Lamp Voltage
1.8V or higher	Corrected by +1V
1.4 to 1.8V	Not corrected
1.4V or lower	Corrected by –1V

⑤ **AE Sensor Gain Adjustment**

The output from the AE Sensor which detects the original image density in the Auto Exposure mode varies depending on the intensity of the LA1 light. The AE Sensor gain is therefore adjusted in proportion to the setting (or correction) of the optimum Exposure Lamp voltage.
The AE Sensor gain can be varied by the pulse signal (pulse width) output from pin 9 of IC1A on Master Board PWB-A. The following two different types of controls are provided.

(1) The AE Sensor gain is adjusted when the F5 operation is run.

Control

When the F5 operation is run, the optimum Exposure Lamp voltage is set (corrected).

↓

LA1 is turned ON to illuminate a blank sheet of paper placed on the Original Glass with an optimum Exposure Lamp voltage.

↓

The AE Sensor output voltage is applied to pin 1 of IC1A on Master Board PWB-A.

↓

The AE Sensor gain is varied so that the above voltage becomes 1.8V and the pulse signal (pulse width) is finally selected that has resulted in the gain nearest to 1.8V within the range of ±0.5V.

↓

LA1 is turned ON to illuminate the halftone patch on the back of the Original Width Scale with the optimum Exposure Lamp voltage.

↓

The AE Sensor output voltage is applied to pin 1 of IC1A and stored in memory. ... A

(2) The AE Sensor gain is corrected as necessary when the Exposure Lamp voltage is corrected (by (3) or (4) of ④), thereby maintaining the appropriate AE control.

Control

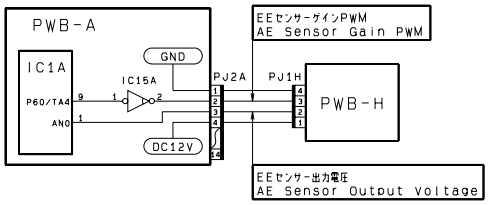
After the exposure correction has been made, LA1 is turned ON to illuminate the halftone patch on the back of the Original Width Scale with the Exposure Lamp voltage which has undergone the correction.

↓

The AE Sensor output voltage is applied to pin 1 of IC1A on PWB-A.

↓

The AE Sensor gain is adjusted so that the above voltage becomes the voltage value stored in memory when F5 was run and the pulse signal (pulse width) at that time is taken.



1075C52MAA

◆ **Control Processing Timing**

① AIDC Sensor variation adjustment
② AIDC Sensor contamination correction
③ T/C control level setting (correction)
④ Optimum Exposure Lamp voltage setting (correction)
⑤ AE Sensor gain adjustment

O: Performed

Item	Timing	①	②	③	④	⑤
Initial Setting	At the initial setup, or when the first F5 operation is run after the PC Drum has been replaced.	O	O	O	O	O
	The second or subsequent F5 operation is run when "Exp. Lamp Manual Adj." setting of the Tech. Rep. Choice has been changed or the Exposure Lamp cleaned.	O	O	O	O	O
Correction When Power is Turned ON	The Power Switch is turned ON (one-shot correction).	If further correction is necessary after ②	O	△ *1	O	If LA1 intensity has been varied by ④
Regular Correction	Each time the copier has made 200 copies after the Power Switch has been turned ON.	If further correction is necessary after ②	O	O *2	O *3	If LA1 intensity has been varied by ④

*1: This corresponds to the first regular correction session in which a solid-black pattern is produced to read the ID. The T/C control level is not changed, however, even if the ID is outside the good range.
*2: The T/C control level is changed only when the level is considered to need two consecutive 0.5% increases or decreases.
*3: The processing is not performed if the ID is outside the specified range (3.85 to 4.45V) in ③.

7-4. Control for Correction for a Deteriorated PC Drum and a Faulty AIDC Sensor

The PC Drum deteriorates with age, resulting in its surface potential being reduced. To compensate for it, the following controls are provided according to the period of time over which the PC Drum has turned. When the copier detects a faulty AIDC Sensor [if adjustments of ① and ② are not possible], it drops the AIDC Sensor control and, instead, provides the following controls for stabilized image.

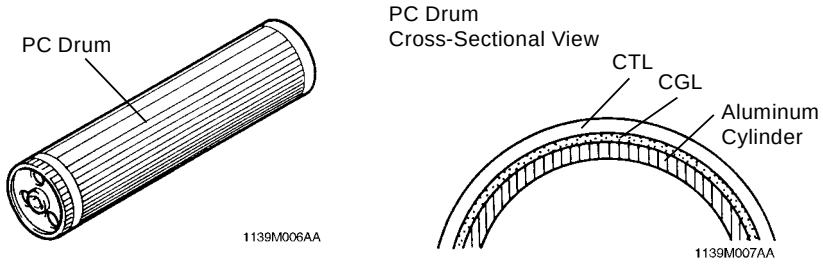
(1) The Exposure Lamp voltage setting is increased by 1V each time the cumulative time over which the PC Drum has turned exceeds 12 hours (720 minutes).
(2) The grid voltage (V_G) is increased by 15V each time the cumulative time over which the PC Drum has turned exceeds 36 hours (2,160 minutes).

8 PC DRUM

8-1. PC Drum

- The photoconductor used in this copier is the organic photoconductor (OPC) type.
- The drum is made up of two distinct, semiconductive materials on an aluminum alloy base. The outer of the two layers is called the Charge Transport Layer (CTL), while the inner layer is called the Charge Generating Layer (CGL).
- The PC Drum measures ϕ100 mm $\times$ 350 mm.

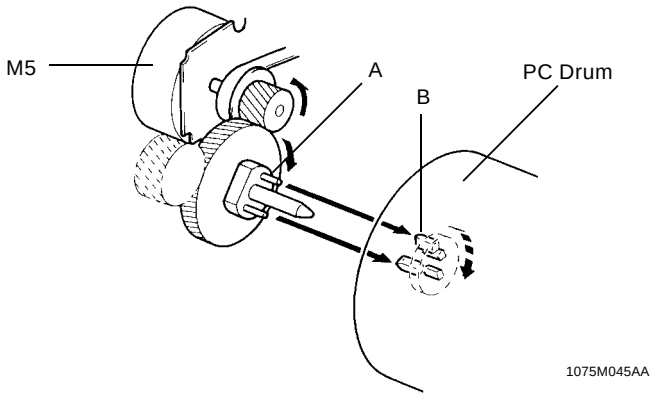
Handling Precautions
This photoconductor exhibits greatest light fatigue after being exposed to light over an extended period of time. It must therefore be protected from light by a clean, soft cloth whenever the PC Unit has been removed from the copier. Further, use utmost care when handling the PC Drum to prevent it from being contaminated.



8-2. PC Drum Drive Mechanism/Control

<PC Drum Drive Mechanism>

- Drive for the PC Drum comes from PC Drum Drive Motor M5.
- When the PC Unit is slid into the copier, Catch A engages with Catch B on the rear flange of the PC Drum. This transmits the drive from M5 to the PC Drum.



<PC Drum Drive Control>

M5 is energized and deenergized by the output from pin 52 of IC5A on Master Board PWB-A.

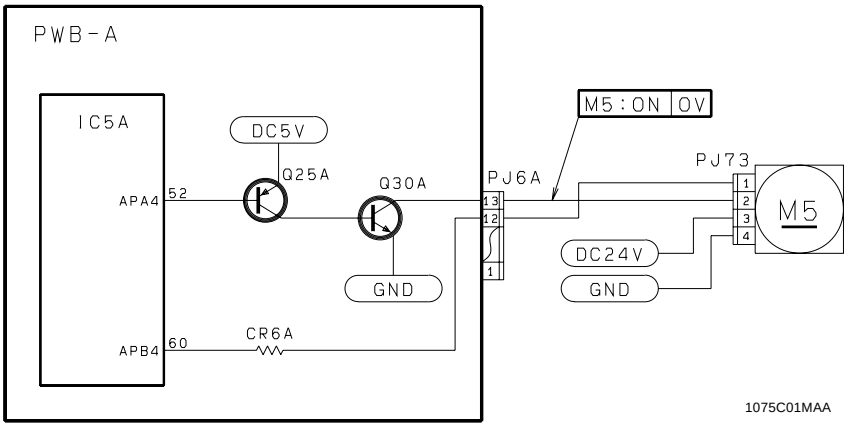
= M5 Energization Timing =

M5 is energized at different timings depending on which drawer the paper is fed from. Timer value T1, which is the period between the press of the Start Key and the energization of M5, varies with the paper source as listed below. This ensures that the PC Drum turns for a given period of time for each copy cycle regardless of the paper source.

Paper Source	T1
1st and 2nd Drawer	5msec
3rd Drawer	290msec
Multi Bypass Table	600msec

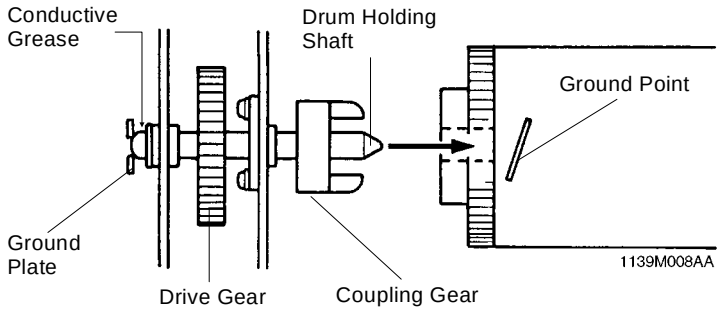
= M5 Deenergization Timing =

M5 is deenergized approx. 1,250 msec. after Scanner Control Processor Board PWB-J has output a SCEND signal.



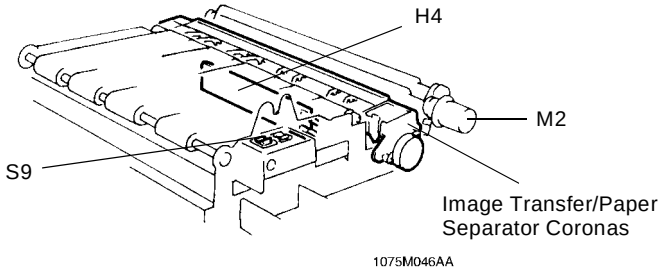
8-3. Grounding of the PC Drum

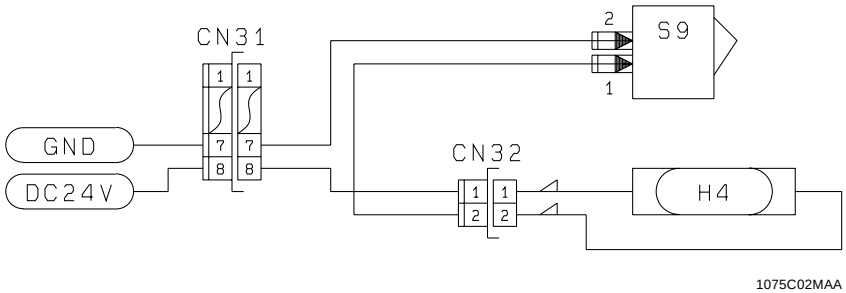
The PC Drum ground point is inside the rear end. When the PC Unit is slid into the copier, the Drum Holding Shaft contacts the ground point. This provides for assured grounding of the PC Drum through the Ground Plate in the rear to the frame of the copier.



8-4. Drum Dry Heater

- Drum Dry Heater H4 is located beside the Image Transfer/Paper Separator Coronas. It is a panel heater that prevents condensation from forming on the surface of the PC Drum.
- H4 turns ON when:
  1. The power cord is plugged in the wall outlet.
  2. Power Switch S1 is in the OFF position.
  3. Drum Dehumidifying Switch S9 is in the ON position.

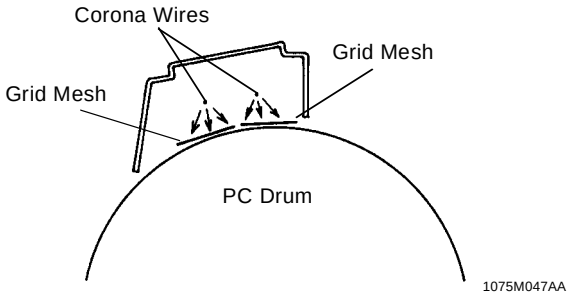


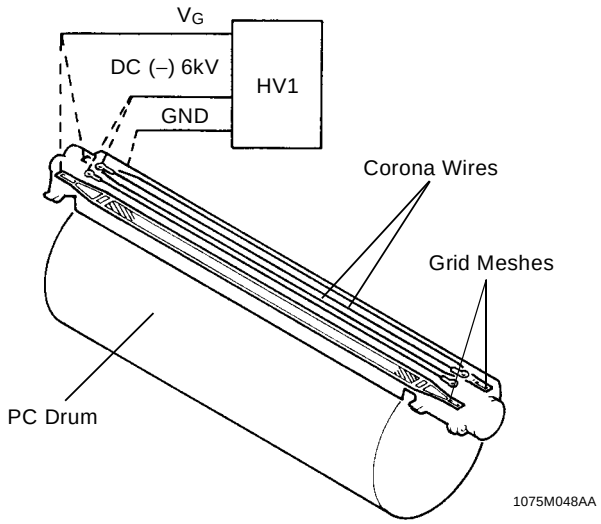


9 DRUM CHARGING

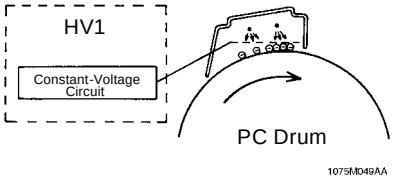
9-1. PC Drum Charge Corona

- The PC Drum Charge Corona of this copier is provided with two corona wires and Scorotron grids, depositing a DC negative charge evenly across the entire surface of the PC Drum.
- When PC Drum Charge HV HV1 turns ON, a voltage of approx. DC-6kV flows through the two wires and a corona emission begins. A grid voltage (V_G) is applied to the two grid meshes, thereby ensuring that the charge level is maintained evenly across the entire surface of the PC Drum.
- The grid voltage (V_G) applied to the grid meshes is varied to compensate for any drop in the surface potential (V_0) which could occur with age. (For more details, see page M-24.)
- V_G is controlled by the Constant-Voltage Circuit in HV1 to remain in the range between DC–650V and –890V according to the Grid Control pulse output from Master Board PWB-A. It is initially set at DC–770V.
- The corona unit is provided with a mechanism that cleans its two wires at a given timing. It effectively removes from the wires any toner and dust particles which would otherwise cause uneven charging. (For more details, see p. M-31.)





<Theory of Scorotron System with Two Wires>



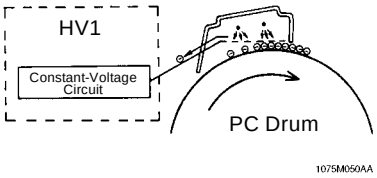
HV1 turns ON and DC negative corona emissions begin from the two corona wires. A grid voltage according to the Grid Control pulse is applied to the two grid meshes.

↓

Since there is a potential difference between the grid mesh and PC Drum at this time, the negative charge of the corona emission flows through the grid mesh to the surface of the PC Drum, resulting in the surface being charged to a relatively even level by the 1st Scorotron Unit.
During this time, the PC Drum is being charged and its surface potential remains low.

↓

Like the 1st Scorotron Unit, the 2nd Unit deposits negative charge on the surface of the PC Drum. The potential of the PC Drum then becomes equal to that of the grid mesh (i.e., it reaches the grid voltage as set by the Grid Control pulse).



↓

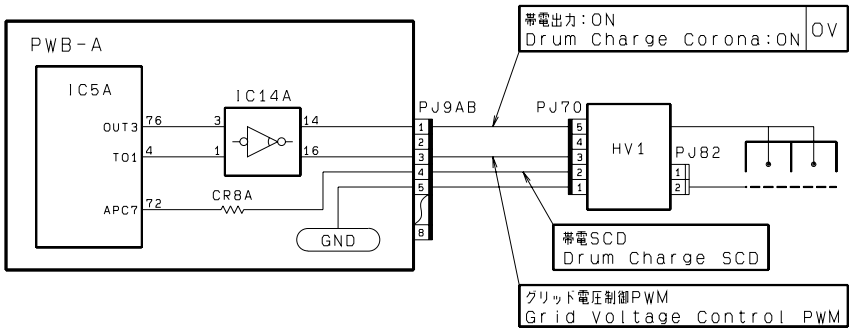
When the PC Drum potential equals the grid mesh potential, the DC negative corona current flows through the grid mesh though HV1 to the ground. The surface of the PC Drum will therefore never be charged above the given level.

9-2. Control of the PC Drum Charge Corona

The PC Drum Charge Corona is turned ON and OFF by the output signal from pin 76 of IC5A on Master Board PWB-A.

<ON Timing>
The PC Drum Charge Corona/Grid voltage output from PC Drum Charge HV HV1 is turned ON approx. 400 msec. after PC Drum Drive Motor M5 has been energized (see p. M-26).

<OFF Timing>
The PC Drum Charge Corona/Grid voltage output from HV1 is turned OFF approx. 280 msec. after Scanner Control Processor Board PWB-J has output a SCEND signal.



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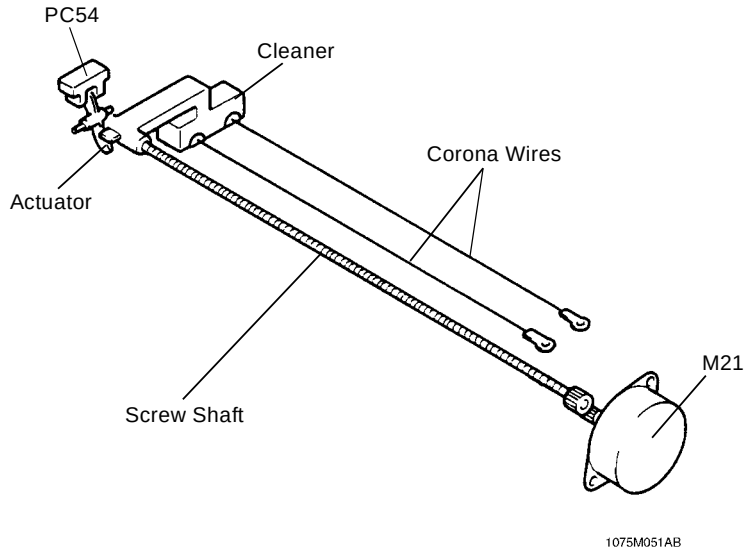
9-3. PC Drum Charge Corona Wires Cleaning Mechanism/Control

The PC Drum Charge Corona is provided with a mechanism that automatically cleans its two corona wires. It effectively removes from the wires any toner and dust particles which would otherwise cause uneven charging, white streaks on copies, and charge leak.

<Mechanism>

- When PC Drum Charge Wire Cleaning Motor M21 is energized, its drive is transmitted to the Screw Shaft. This in turn moves the Cleaner mounted on the Screw Shaft.
- M21 is a two-phase stepping motor. The Cleaner is detected at its standby position (which is the reference position for its cleaning motion) by Drum Wire Cleaner Home Position Sensor PC54.
- The Cleaner makes one round trip per each cleaning cycle.



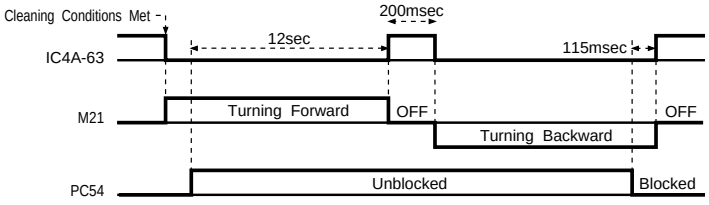
<Control>

- The PC Drum Charge corona wires are automatically cleaned under the following conditions. The cleaning function is, however, disabled if the "Charge Wire Cleaning" function of "System Input" available from the Tech. Rep. mode has been set to "Off".

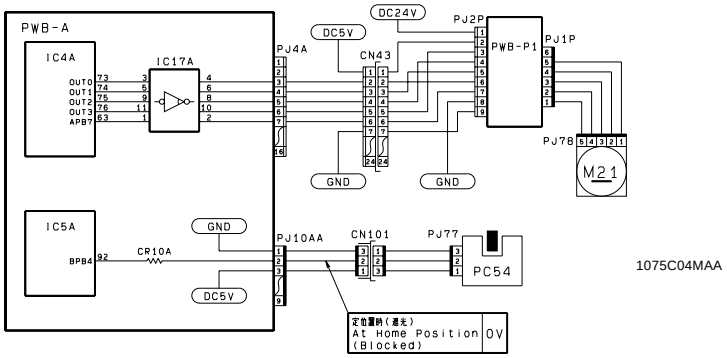
(1) A period of 200 msec. has elapsed after Power Switch S1 has been turned ON.
(2) The number of copies made exceeds 2,000 after S1 has been turned ON and 10 minutes elapse after the last copy cycle has been completed (the same timing as the auto clear when paper is empty).
(3) A PC Drum Charge Corona malfunction (C0200), which has been detected, is reset.

(4) A misfeed/malfunction, which has been detected, is reset with a sheet of paper remaining at the area near the Image Transfer/Paper Separator Corona.

- No control panel indication is given for the cleaning cycle and the copier accepts the press of the Start Key, though it only feeds the paper up to the Synchronizing Rollers and starts the scan after the cleaning cycle is completed.
- If the timing arrives for the timer power OFF function during a cleaning cycle, the copier is turned OFF after the current cleaning cycle is completed.
- M21 is energized and deenergized by a signal output from pin 63 of IC4A on PWB-A and fed via PC Drum Charge Wire Cleaning Motor Drive Board PWB-P1.
- The Cleaner is detected at its standby position when the light blocking plate of the Cleaner blocks Drum Wire Cleaner Home Position Sensor PC54.
- When the above conditions for auto wire cleaning are met, the cleaning sequence is carried out at the following timing.



1075T95MCA



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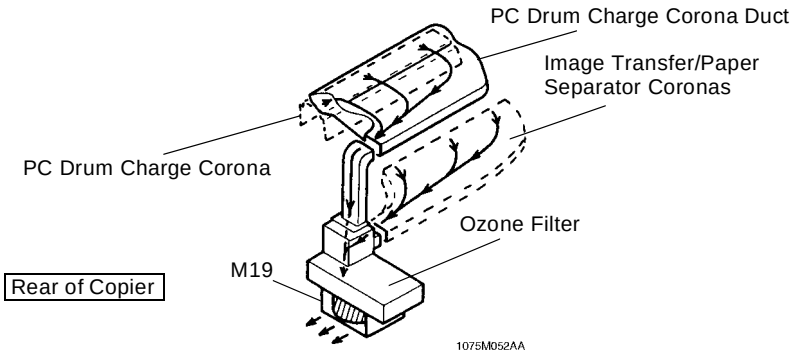
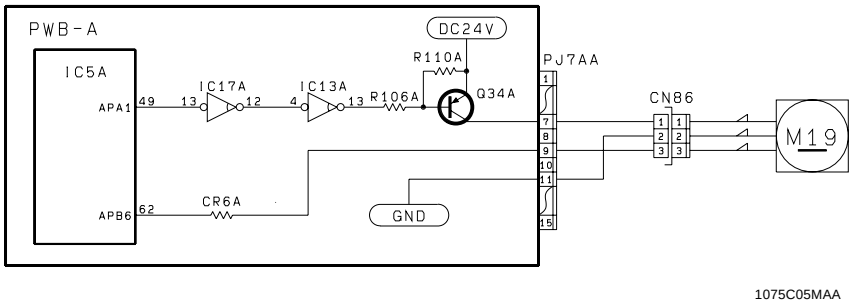
9-4. Ozone Filter

- Ozone produced by the PC Drum Charge Corona is absorbed by the Ozone Filter as the air is drawn out of the copier by Ventilation Fan Motor M19.
- This Ozone Filter is also used to absorb ozone produced by the Image Transfer/Paper Separator Coronas from the air drawn out of the copier by M19.
- M19 is energized and deenergized by the output from pin 49 of IC5A on PWB-A.



<M19 Energization Timing>
M19 is energized at the same time when PC Drum Drive Motor M5 is energized (see p. M-26).

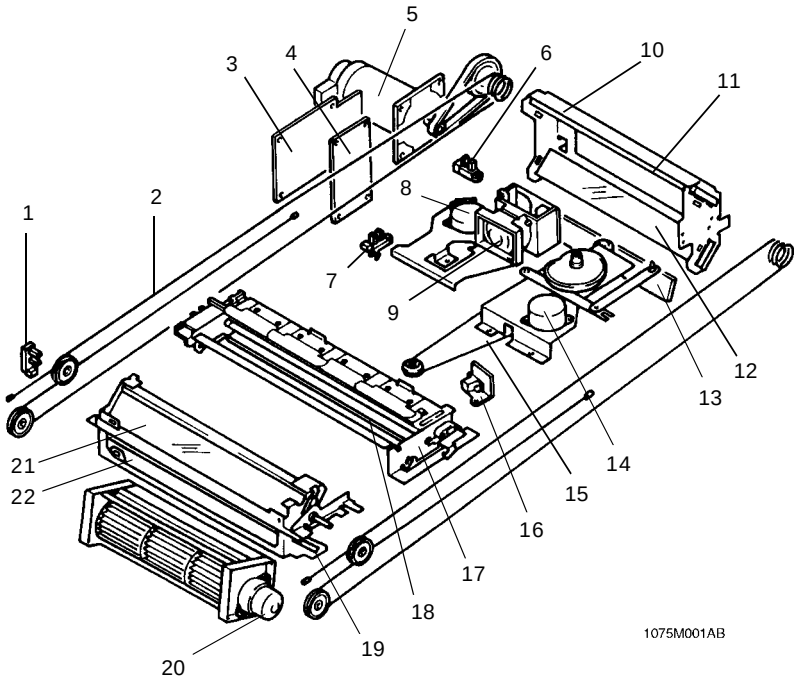
<M19 Deenergization Timing>
M19 is deenergized approx. 4,600 msec. after the trailing edge of the last copy has moved past Paper Exit Sensor PC36.



10 OPTICAL SECTION

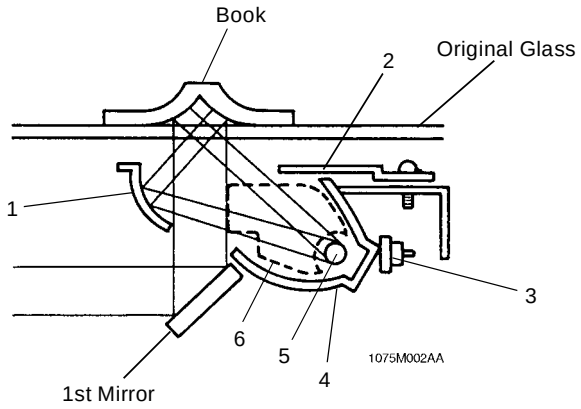
- As the Scanner is moved by Scanner Motor M11, the light from Exposure Lamp LA1 is reflected off the original and guided through the six mirrors onto the surface of the PC Drum to form the electrostatic latent image.

10-1. Construction



	Part Name	Symbol	Function
1	Scanner Reference Position Sensor	PC1	Provides the reference position for Scanner movement.
2	Scanner Drive Cable (Rear)		Driven by Scanner Motor M11 to move the Scanner and 2nd/3rd Mirrors Carriage. (The front Scanner Drive Cable performs the same function.)
3	Scanner Control Processor Board	PWB-J	Mainly controls M11.
4	Exposure Lamp Regulator	PU5	Applies an appropriate voltage to Exposure Lamp LA1.
5	Scanner Motor	M11	Drives the Scanner and 2nd/3rd Mirrors Carriage by way of the Scanner Drive Cables.
6	Lens X Direction Reference Position Sensor	PC2	Provides the reference position for the Lens to move in the X-direction (feeding direction).
7	Lens Y Direction Reference Position Sensor	PC3	Provides the reference position for the Lens to move in the Y-direction (crosswise direction).
8	Lens Y Direction Drive Motor	M13	Moves the Lens in the Y-direction (crosswise direction).
9	Lens		Brings together rays of light reflected off the original.
10	4th/5th Mirrors Carriage		Corrects the conjugation distance according to the current zoom ratio.
11	4th Mirror		Reflects the light from the 3rd Mirror and Lens onto the 5th Mirror.
12	5th Mirror		Reflects the light from the 4th Mirror onto the 6th Mirror.
13	6th Mirror		Reflects the light from the 5th Mirror onto the surface of the PC Drum.
14	Lens X Direction Drive Motor	M12	Moves the Lens in the X-direction (feeding direction) by way of the Lens Drive Cable.
15	Lens Drive Cable		Transmits drive from M13 to move the Lens in the X-direction (feeding direction).
16	AE Sensor Board	PWB-H	Measures the intensity of the light reflected off the original.
17	Scanner		Scans the original.
18	1st Mirror		Reflects the light from the original onto the 2nd Mirror.
19	2nd/3rd Mirrors Carriage		Maintains the optical path length between the original and PC Drum.
20	Optical Section Cooling Fan Motor	M17	Cools the optical section.
21	2nd Mirror		Reflects the light from the 2nd Mirror onto the Lens.
22	3rd Mirror		Reflects the light from the 1st Mirror onto the 3rd Mirror.

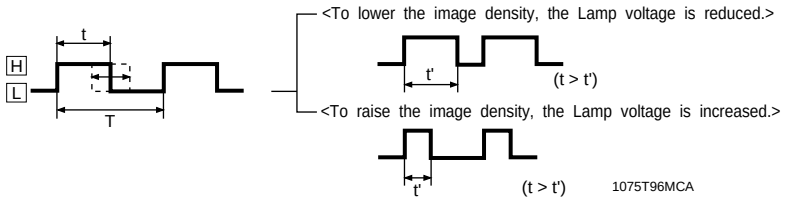
10-2. Function of Exposure Components



1. Auxiliary Reflector	:	Reflects light onto the areas that Exposure Lamp LA1 cannot illuminate when an original does not lie flat on the Original Glass (such as a book). It functions to reduce shadows which would otherwise be transferred to the copy.
2. Aperture Plates:	:	Regulate the amount of LA1 light illuminating the original surface. (There are four plates.)
3. Exposure Lamp Thermal Fuse TF1	:	Becomes electrically open (blows) if the temperature in the area surrounding the Main Reflector runs excessively high, thereby preventing LA1 from being kept ON or turning ON with the maximum line voltage.
4. Main Reflector	:	Ensures that light from LA1 exposes all areas of the original.
5. Exposure Lamp LA1	:	A halogen frost lamp is used and its light distribution characteristics keep the intensity of the light remaining flat.
6. Intensity Correction Mirror	:	Fitted on the front and rear ends of the Scanner, these mirrors correct the intensity of the light emitted by LA1 slightly attenuated at the very ends.

10-3. Exposure Lamp LA1 Control

- The voltage applied to Exposure Lamp LA1 is controlled by changing the duty ratio of the pulse width of the Exposure Lamp Control signal (AVRPWM*) output from Master Board PWB-A.
  * AVR is an acronym for Auto Voltage Regulator.
    PWM is an acronym for Pulse Width Modulation.
- For possible contamination of the optical system and to incorporate any correction made in the grid voltage, the copier automatically varies the optimum intensity of the LA1 light and adjusts AE Sensor gain to ensure stabilized image quality. (For details, see "IMAGE STABILIZATION SYSTEM.")



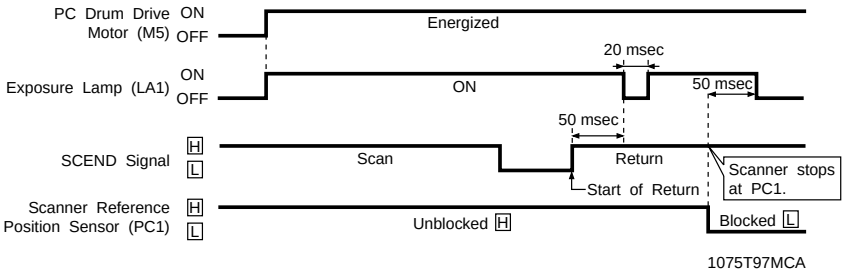
Duty Ratio (%) = Period T − Pulse Width t / Period T

$$\text{Duty Ratio (\%)} = \frac{\text{Period T - Pulse Width t}}{\text{Period T}}$$

(1) LA1 ON/OFF Control

◆ **LA1 ON/OFF Timing**

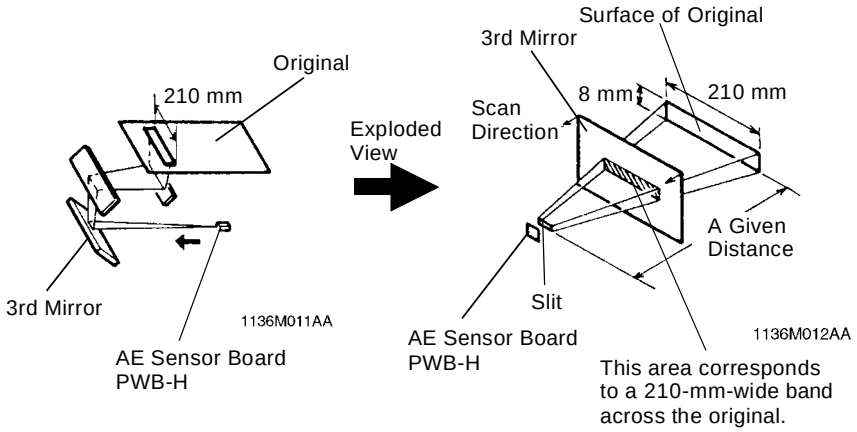
- LA1 turns ON and the Scanner starts a scan motion when PC Drum Drive Motor M5 is energized following the press of the Start Key and paper take-up.
- During a return motion, LA1 turns OFF approx. 50 msec. after the start of the return motion and remains OFF for approx. 20 msec. before turning ON again. (It turns OFF 50 msec. after the Scanner has returned to the position of Scanner Reference Position Sensor PC1.)



(2) Auto Exposure Control

<Overview>

- The copier is provided with the Auto Exposure mode in which the voltage applied to LA1 is automatically increased or decreased as necessary so that copies of consistent quality are produced regardless of whether, for example, the original has a dark background or is a pencil line drawing.
- AE Sensor Board PWB-H beside the Lens measures the intensity of the light reflected off the 3rd Mirror, which results in the black/white ratio of an area of 210 mm (W) × 8 mm (L) of the original being measured. As the original is being scanned in the Auto Exposure mode, PWB-H senses the image density of the original (or the intensity of the light reflected) on a real-time basis.
- In this mode, the copier either increases or decreases the LA1 voltage according to the difference between the AE Sensor output and reference voltage during the period between when the Image Leading Edge signal (BASE) is output and when LA1 is turned OFF.



<Operation/Control>

With the copier set into the Auto Exposure mode (the Touch Panel showing "Auto Expo."), press the Start Key. Then, LA1 is turned ON at the central manual exposure level (EXP5) and the Scanner leaves its home position (PC1 blocked) to travel up to the leading edge position of the original [where the Image Leading Edge signal (BASE) goes from HIGH to LOW]. This starts the automatic exposure control.

↓

Control by AE Sensor Board PWB-H

Light reflected off the original strikes PD1H (photodiode) and PWB-H converts its intensity to a corresponding voltage value, outputting an AE Sensor analog voltage to Master Board PWB-A. (The higher the intensity of the light striking PD1H, the lower the AE Sensor analog voltage.)

↓

Original	Light Intensity	Analog Output Voltage
Light	High	Low
Dark	Low	High

Control by Master Board PWB-A

Receiving the AE Sensor analog voltage, PWB-A compares it with the reference voltage. It increases the Lamp voltage if the input voltage is higher than the reference, and decreases it if the input is lower than the reference. It varies the duty ratio of the pulse width of the Exposure Lamp Control signal (AVRPWM) and outputs the pulse signal to Exposure Lamp Regulator PU5.

↓

Control by Exposure Lamp Regulator PU5

PU5 controls the Exposure Lamp voltage according to the input pulse signal.

(3) Manual Exposure Control

- When either one of the Exposure Control Keys (Lighter or Darker) on the Touch Panel is touched, it sets the copier into the Manual Exposure mode. In this mode, the copier permits the user to vary the Lamp voltage (i.e., the exposure level) in nine different steps.

<Operation/Control>

Touch the Exposure Control Key as necessary.

↓

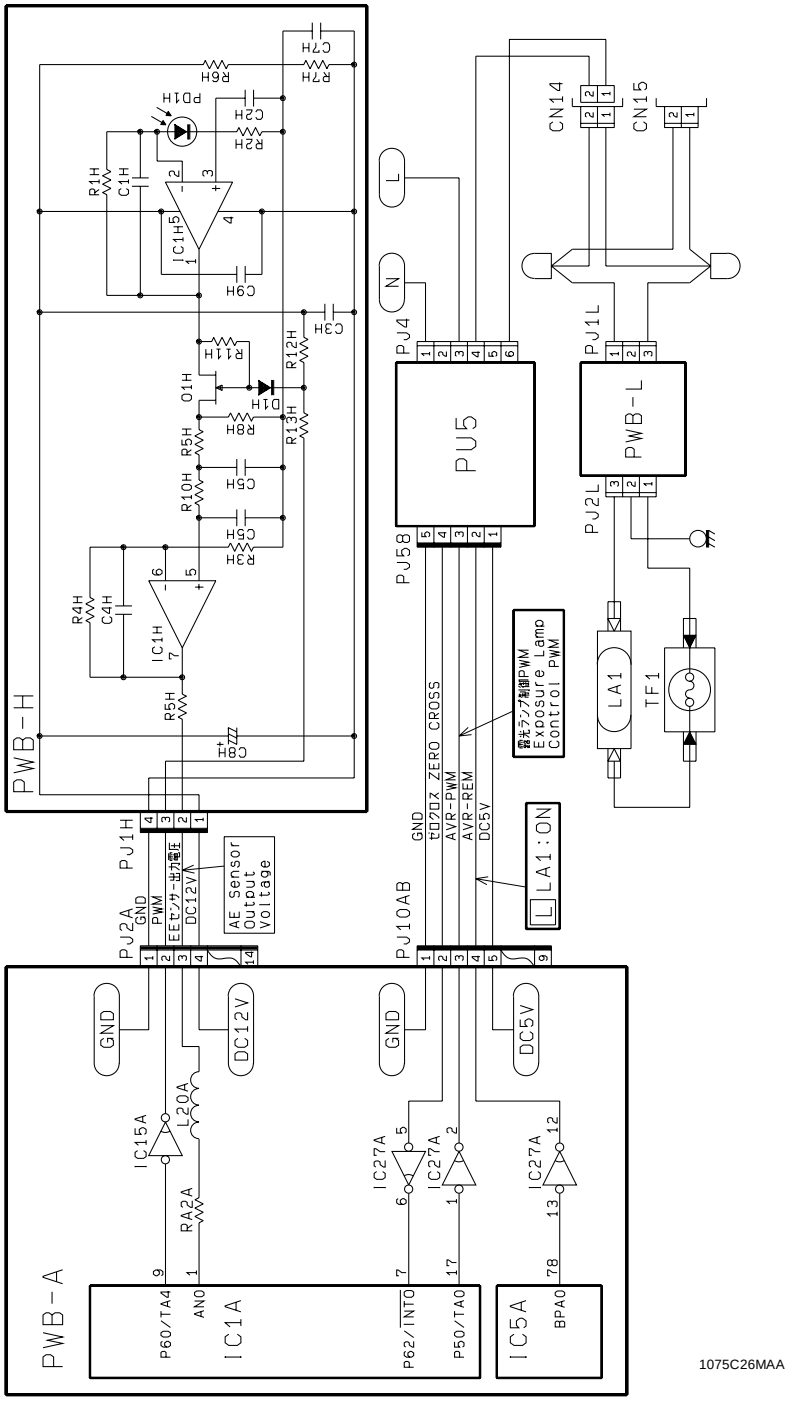
Control by Master Board PWB-A

The exposure level data is sent from the control panel to PWB-A via MSC Board PWB-B.
PWB-A converts the exposure level data to a pulse signal and outputs it to PU5.

↓

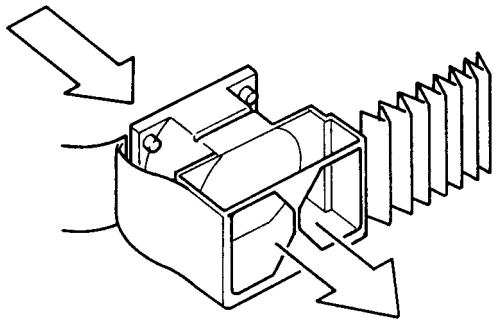
Control by Exposure Lamp Regulator PU5

According to the input pulse signal, PU5 sets the Lamp voltage (variable in nine steps).


PWB-H
PWB-A
PWB-L
PU5
IC1A
IC5A
IC1H
IC15A
IC27A
PD1H
D1H
R1H
C1H
R2H
C2H
R6H
R7H
C7H
C9H
C3H
R11H
R12H
R13H
R8H
R5H
C5H
R10H
C5H
R3H
C3H
R4H
C4H
C8H
ZZH
PJ1H
PJ2A
PJ4
PJ58
PJ10AB
PJ1L
PJ2L
CN14
CN15
L
N
GND
PWM
EEセンサー出力電圧
DC12V
AE Sensor Output Voltage
露光ランプ制御PWM
Exposure Lamp Control PWM
ゼロクロス ZERO CROSS
AVR-PWM
AVR-REM
DC5V
LA1:ON
LA1
TF1
L20A
RA2A
P60/TA4
AN0
P62/INT0
P50/TA0
BPA0
1075C26MAA

10-4. Intensity Correction

(1) Because of the nature of the Lens, the intensity of the LA1 light after passing through the Lens tends to be higher at the center and lower toward both ends. To solve this problem, there is a Lens Aperture Cover installed at the back of the Lens. It limits the amount of light at the center to ensure that an even amount of light strikes the surface of the PC Drum.



1075M003AA

(2) When a zoom ratio is large, it results in the intensity of light striking the surface of the PC Drum decreasing. The following exposure corrections are made according to the zoom ratio to correct this problem. (Particular correction ratios are set for different zoom ratios and used to increase the Lamp voltage. The same correction ratios are used for both the Auto and Manual Exposure modes.)

Zoom Range	Manual/Auto Exposure Correction Ratio
0.500 to 0.523	+6%
0.524 to 0.556	+5%
0.557 to 0.596	+4%
0.597 to 0.646	+3%
0.647 to 0.713	+2%
0.714 to 0.822	+1%
0.823 to 1.215	±0%

Zoom Range	Manual/Auto Exposure Correction Ratio
1.216 to 1.401	+1%
1.402 to 1.546	+2%
1.547 to 1.675	+3%
1.676 to 1.796	+4%
1.797 to 1.911	+5%
1.912 to 2.000	+6%

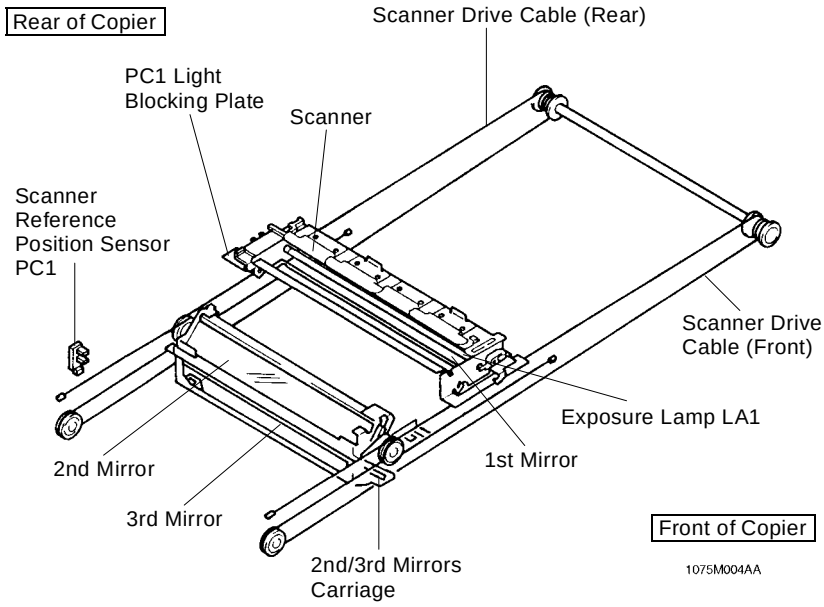
10-5. Scanner and Mirrors Carriages Moving Mechanism

<Scanner>

- The Scanner projects an even amount of light from Exposure Lamp LA1, as it moves, onto the entire surface of the original and reflects this light, with the 1st Mirror, onto the 2nd and 3rd Mirrors.
- It is driven by Scanner Motor M11 with the Scanner Drive Cables attached to the front and rear at a speed appropriate to the set zoom ratio. The speed is varied from the reference speed of 340.0 mm/sec. which is the scan speed for the full size mode.
- The Scanner is at its home position when Scanner Reference Position Sensor PC1 is blocked. The position serves as the reference for the scan motion.

<2nd/3rd Mirrors Carriage>

- The 2nd and 3rd Mirrors are mounted to their holder at right angles to each other. They function to let the light reflected off the 1st Mirror strike the 4th and 5th Mirrors through the Lens.
- The 2nd/3rd Mirrors Carriage is also moved by the Scanner Drive Cables and pulleys driven by M11. It travels at a speed half that of the Scanner, thereby keeping constant the optical path length between the Original Glass and PC Drum.
- The 2nd/3rd Mirrors Carriage has been adjusted to run parallel with the Scanner though Focus-Positioning of the Scanner and Mirrors Carriage.

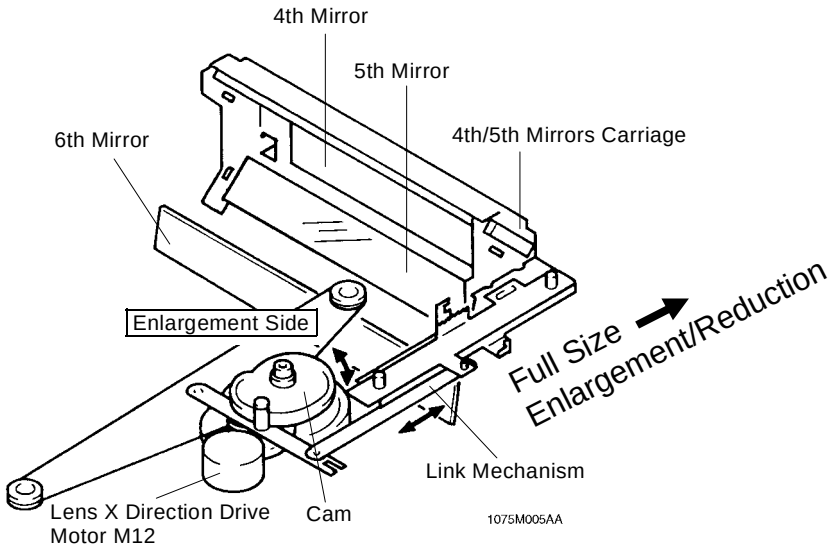


<4th/5th Mirrors Carriage>

- The 4th and 5th Mirrors are mounted to their holder at right angles to each other. They function to let the light reflected from the 3rd Mirror and through Lens strike the 6th Mirror via themselves.
- The 4th/5th Mirrors Carriage is moved in the X-direction (feeding direction) to correct the conjugation distance (the distance between the original and the surface of the PC Drum) according to the set zoom ratio. Its drive comes from Lens X Direction Drive Motor M12 which turns a cam. The rotary motion of the cam is changed to a reciprocating, or straight-line, motion of the carriage through a link mechanism.
- To ensure that a focused image of the original is reproduced on the surface of the PC Drum when in an enlargement or reduction mode, the conjugation distance must be greater than that when in the full size mode. To accomplish this, the 4th/5th Mirrors Carriage is moved in the direction of a greater conjugation distance.
- There are three different types of cams available according to the focal length of the Lens. When the Lens is replaced, the cam must also be replaced with one appropriate for the focal length of the new Lens.

Lens Focal Length (in mm)	Cam ID Marking	Cam Part No.
213.50 to 214.35	–	1046-4823-02
214.40 to 215.20	0	1046-4821-02
215.25 to 216.10	+	1046-4822-02

Note: In the illustration below, if the 4th/5th Mirrors Carriage is located at the full size position, it moves in the direction of the arrow ➡ for all enlargement or reduction modes.



10-6. Scanner Motor M11 Control

<Overview>

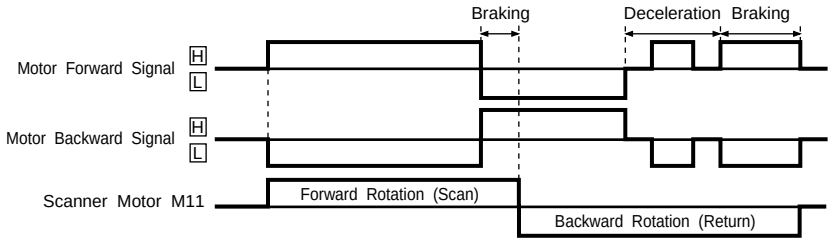
- A DC servomotor is used for Scanner Motor M11. The pulse width modulation, or PWM, control is employed in which the average voltage is controlled by varying the width of the Scanner drive pulse which is the voltage input to M11.
- M11 has a built-in photosensor and pulse disk. Their function is to convert the Motor shaft speed into a corresponding series of pulses. This pulse signal is input to Scanner Control Processor Board PWB-J.
- PWB-J then calculates the Motor speed using the period of the pulse signal applied to it and controls the Scanner drive pulse which is to be applied to the Motor. This effectively stabilizes the Motor speed.
- The pulse signal applied to PWB-J is also used to determine the distance over which the Scanner should travel. This distance is represented by the number of pulses corresponding to each paper size and zoom ratio.

<Scan/Return Switching and Braking of M11>

- M11 is turned forward to move the Scanner in the scan direction, turned backward to move the Scanner in the return direction, or braked by the Motor Forward and Backward signals input to PWB-J. Details are as follows.

	Motor Forward Signal (Pin 13 of IC3J)	Motor Backward Signal (Pin 15 of IC3J)
Turns Forward	H	L
Turns Backward	L	H
Braked (in Scan Motion)	L	H
Braked (in Return Motion)	H	L

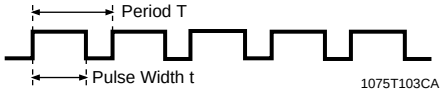
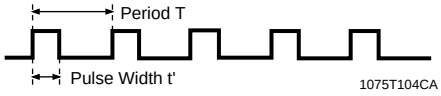
- The brake control in the return motion is provided as follows, since M11 builds up its speed to the maximum level during the return motion. The Motor Backward signal is first alternated between HIGH and LOW states to reduce the input voltage to M11 to a low level. After M11 is decelerated to a given speed through this operation, the above brake control is performed.

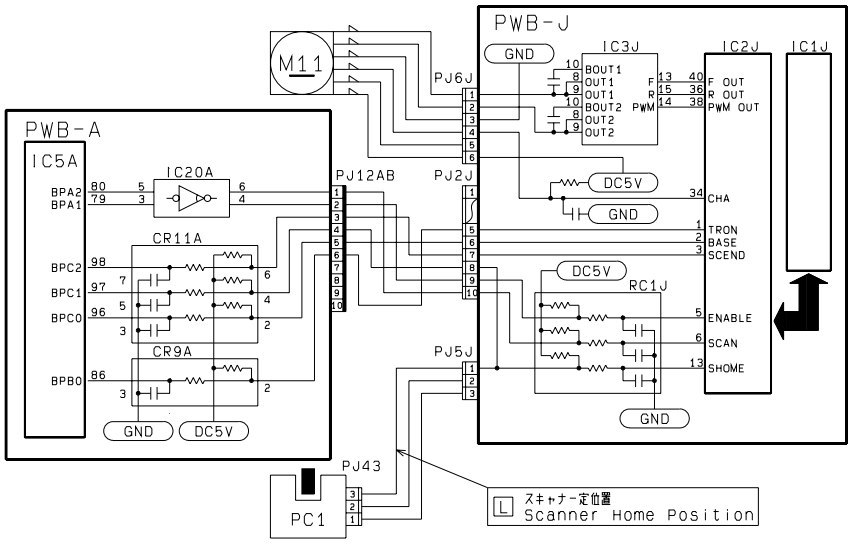


1075T98MCA

<Scanner Speed Control>

- The speed of M11 is controlled by varying the width of the Scanner drive pulse output from Scanner Control Processor Board PWB-J. (This means that the current flowing through M11 is varied.)

	Scanner Drive Pulse Output Waveform
High-Speed Rotation	
Low-Speed Rotation	



10-7. Lens Drive Mechanism/Control

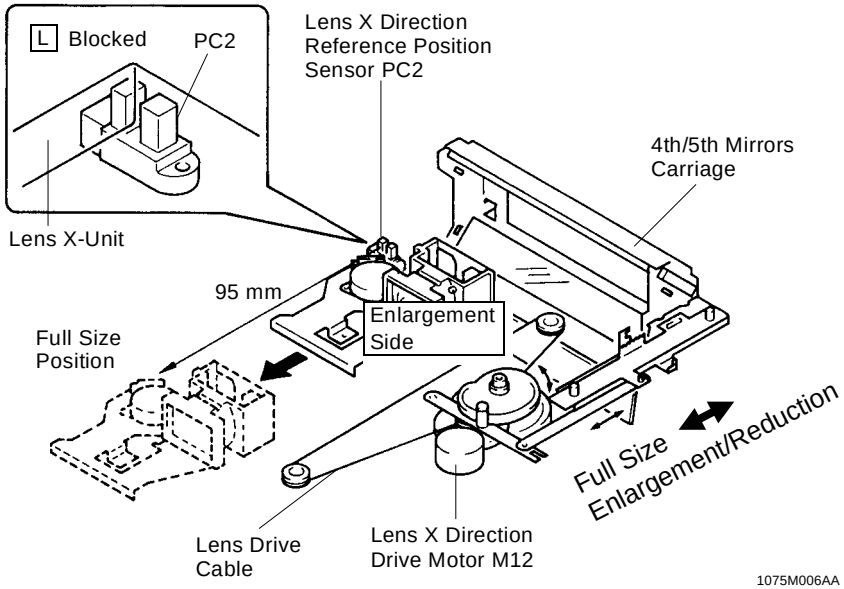
(1) Lens Drive Mechanism

- In this copier, registration for the original is to one side, while the copy paper is fed through the center of the copier. For this reason, the Lens must be moved according to the paper size even in the full size mode (×1.000). The Lens is moved independently in the X-direction (feeding direction) and Y-direction (crosswise direction).

(2) X (Feeding) Direction Lens Motion Mechanism/Control

The Lens is moved in the X-direction to obtain a conjugation distance appropriate for the set zoom ratio.

- The Lens is moved in the X-direction by the cable wound around the pulley turned by Lens X Direction Drive Motor M12. (M12 is a stepping motor and turned forward or backward by the pulse signal output from Scanner Control Processor Board PWB-J.)
- When a zoom ratio is selected, the Lens is moved as follows. The M12's shaft turns 7.5° per step, which is equivalent to approx. 0.19 mm of linear Lens movement.
- The Lens is at the full size position when the Lens X-Unit moves a distance of approx. 95 mm from the position at which it has unblocked Lens X Direction Reference Position Sensor PC2 (the sensor going from LOW to HIGH). This position provides the reference for Lens movement in various zoom ratios.
- As the Lens moves in the X-direction, the 4th/5th Mirrors Carriage moves to correct the conjugation distance appropriate for the zoom ratio.



◆ **Lens X Direction Reference Position Return**

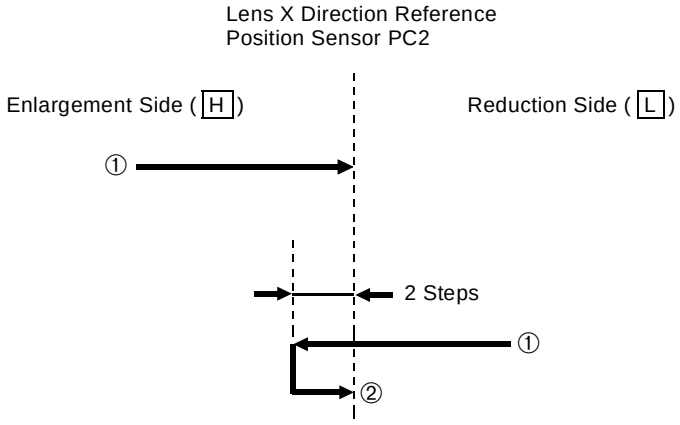
From the enlargement side (H ➡ L)

① M12 is energized to move the Lens toward the reduction side and deenergized when Lens X Direction Reference Position Sensor PC2 goes from HIGH (unblocked) to LOW (blocked). This is the reference position.

From the reduction side (L ➡ H)

① M12 is energized to move the Lens toward the enlargement side. From the point at which PC2 goes from LOW (blocked) to HIGH (unblocked), the Lens is further moved two steps (approx. 0.38 mm) toward the enlargement side before M12 is deenergized.

② M12 is energized to turn backward and, when PC2 goes from HIGH (unblocked) to LOW (blocked), it is deenergized. This is the reference position.



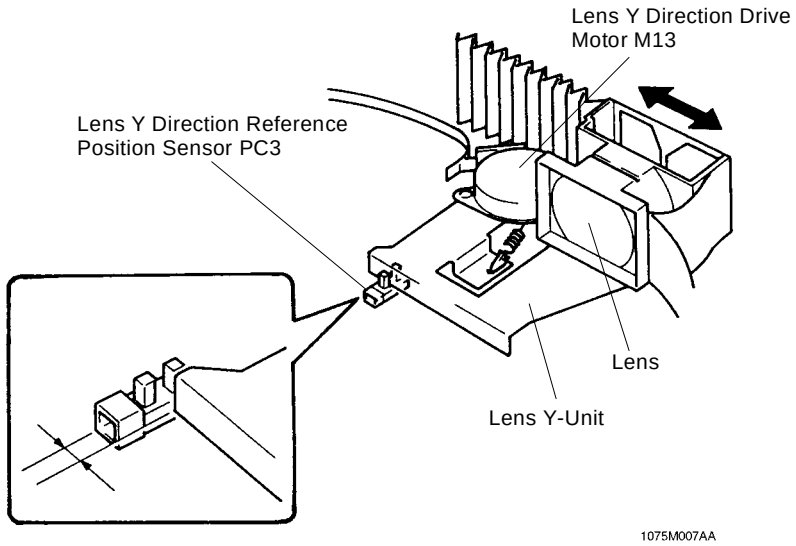
To enhance Lens positioning accuracy, the Lens is always brought to the reference position from the enlargement side. This compensates for the error produced by backlash in the drive gears and part-to-part variations in the moving mechanism.

(3) Y (Crosswise) Direction Lens Motion Mechanism/Control

The Lens must be moved in the Y-direction, since the original is always aligned with the rear side for registration regardless of the paper size (crosswise length) and zoom ratio.

- The Lens is moved in the Y (crosswise) direction by a rack and pinion gear driven by Lens Y Direction Drive Motor M13. (M13 is a stepping motor and turned forward or backward by the pulse signal output from Scanner Control Processor Board PWB-J.)
- When a zoom ratio is selected, the Lens is moved as follows. The M13's shaft turns 1.8° per step, which is equivalent to approx. 0.11 mm of linear Lens movement.

* The paper size widths range from the minimum 100 mm to 297 mm (A3).
* Zoom ratios range from 0.5 to 2.0.



◆ **Lens Y Direction Reference Position Return**

The movement of the Lens in the Y (crosswise) direction should be referred to as that in the plus (+) or minus (–) direction, instead of in the enlargement or reduction direction, since the Lens also needs to be moved in the Y direction according to the paper size (width).

From the plus (+) side (L ➡ H)

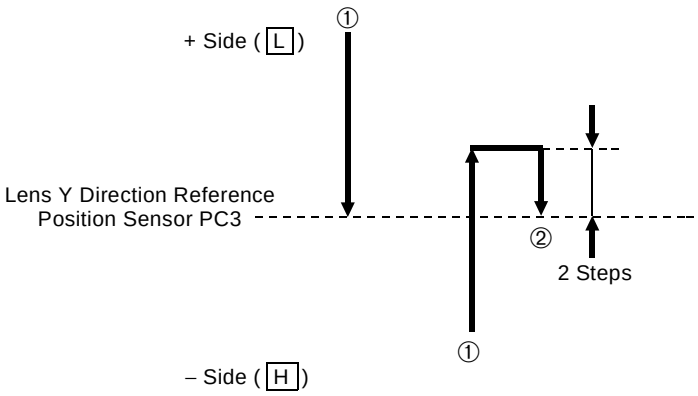
① M13 is energized to move the Lens toward the minus (–) side and deenergized when Lens Y Direction Reference Position Sensor PC3 goes from LOW (blocked) to HIGH (unblocked). This is the reference position.

From the minus (–) side (H ➡ L)

① M13 is energized to move the Lens toward the plus (+) side. From the point at which PC3 goes from HIGH (unblocked) to LOW (blocked), the Lens is further moved two steps (approx. 0.22 mm) toward the (+) side before M13 is deenergized.

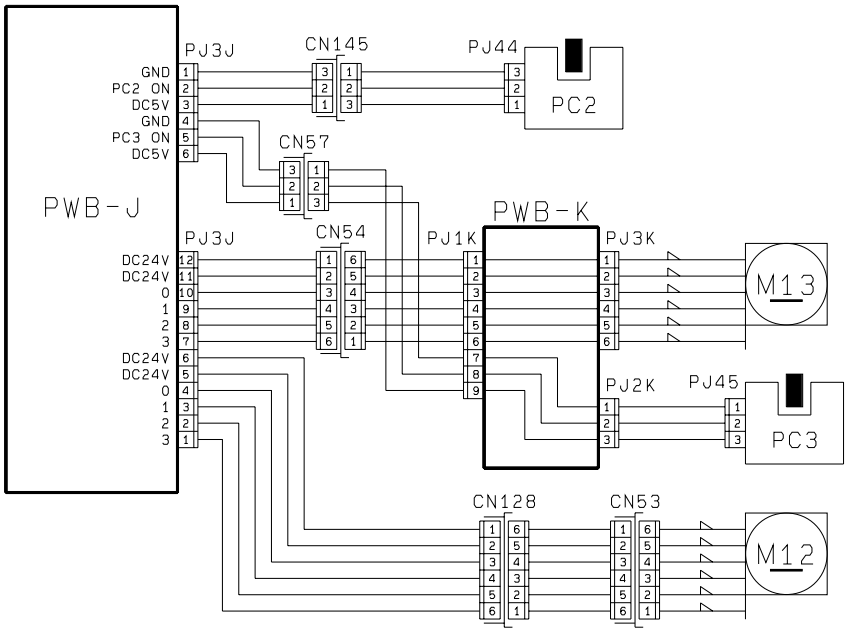
② M13 is energized to turn backward and, when PC3 goes from LOW (blocked) to HIGH (unblocked), it is deenergized. This is the reference position.

Rear Side, Enlargement Direction



Front Side, Reduction Direction

To enhance Lens positioning accuracy, the Lens is always brought to the reference position from the plus (+) side. This compensates for the error produced by backlash in the drive gears and part-to-part variations in the moving mechanism.


PWB-J
PJ3J
GND
PC2 ON
DC5V
GND
PC3 ON
DC5V
CN145
PJ44
PC2
CN57
PWB-K
PJ3J
DC24V
DC24V
0
1
2
3
DC24V
DC24V
0
1
2
3
CN54
PJ1K
PJ3K
M13
PJ2K
PJ45
PC3
CN128
CN53
M12
1075C60MAA

(4) Lens Movements in the X/Y-Direction

◆ **When Power Switch is turned ON**

(1) The Scanner is returned to the home position, if it is not there. It is at the home position when Scanner Reference Position Sensor PC1 is blocked.

↓

(2) The Lens is returned to the reference position in the Y-direction.
Lens Y Direction Reference Position Sensor PC3 ... [L] ➡ [H]

↓

(3) The Lens is returned to the reference position in the X-direction.
Lens X Direction Reference Position Sensor PC2 ... [H] ➡ [L]

↓

(4) The Scanner makes a prescan motion.

↓

(5) Lens drive check in the X-direction.

↓

(6) Lens drive check in the Y-direction.

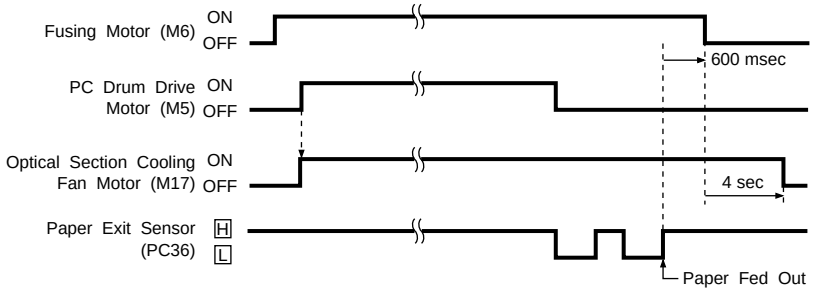
↓

(7) The Lens moves to the full size position.

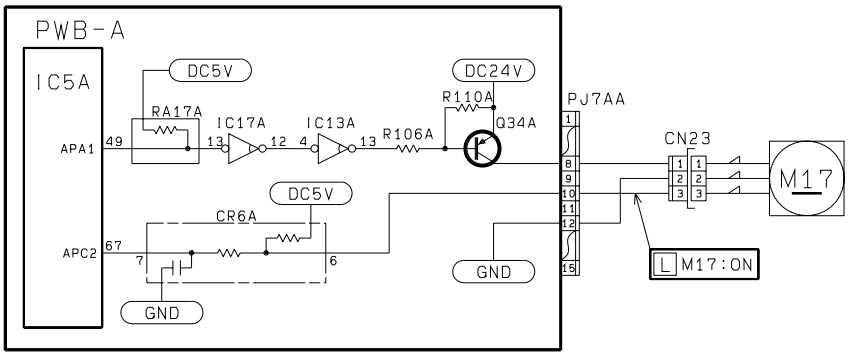
Note: Steps (5) and (6) are not performed when the Lower Front Door is opened and closed (with DC5V being supplied).

10-8. Optical Section Cooling Fan Motor

- Optical Section Cooling Fan Motor M17 draws air from the outside into the inside of the copier to cool the areas around the optical section (especially the Original Glass) which is heated by a lit Exposure Lamp LA1.



1075T99MCB



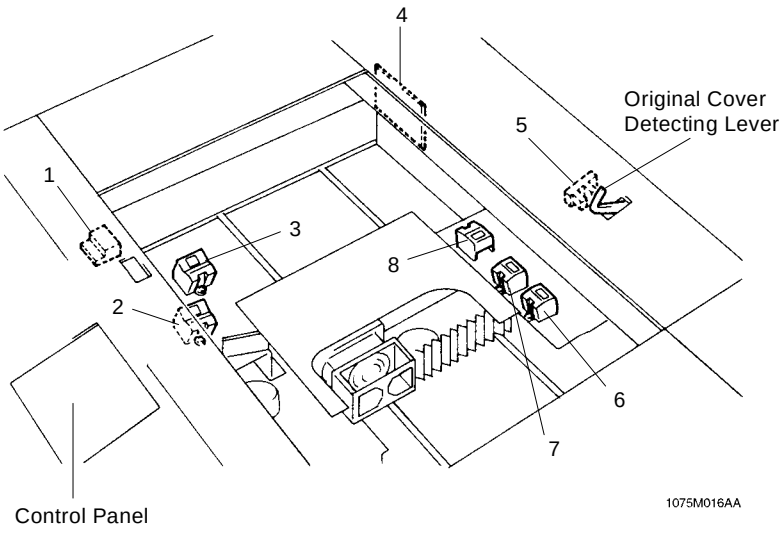
1075C29MAA

11 ORIGINAL SIZE DETECTING SYSTEM

- The conventional original size detecting system, which uses the intensity of the light reflected off the original as the basis for detection, is not 100% capable of detecting originals with high image density. The new system, on the other hand, determines the distance between the sensor and the original and is less affected by the color, reflectivity, paper quality, and other factors of the original.
- The adoption of this new system has resulted in the following improvements.

① Higher maximum original image density level that can be detected, up from a conventional 0.25 to 0.8 according to the manufacturer's comparison.
② The system is less susceptible to the image density and color of the original.
③ The optional sensors enable the detection of originals both of the metric as well as inch systems.

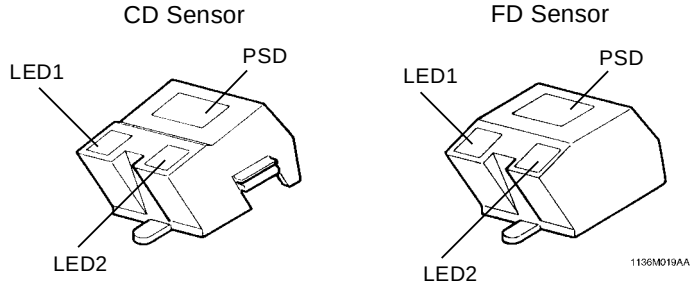
11-1. Construction



	Name	Symbol	Function
1	Size Reset Switch	S7	Clears the preceding original size data.
2	Original Size Detecting Sensor CD2 (option)	UN7	Detects the size of the original in the crosswise direction (i.e., width). Enables the detection of an inch size original.
3	Original Size Detecting Sensor CD1	UN6	Detects the size of the original in the crosswise direction (i.e., width).
4	Original Size Detecting Board	UN2	Determines the size of the original based on the data provided by the Original Size Detecting Sensors.
5	Original Cover Detecting Sensor	PC4	Detects the position of the Original Cover, whether it is raised or lowered.
6	Original Size Detecting Sensor FD3 (option)	UN3	Detects the size of the original in the feeding direction (i.e., length). Enables the detection of an inch size original.
7	Original Size Detecting Sensor FD2	UN4	Detects the size of the original in the feeding direction (i.e., length).
8	Original Size Detecting Sensor FD1	UN5	Detects the size of the original in the feeding direction (i.e., length).

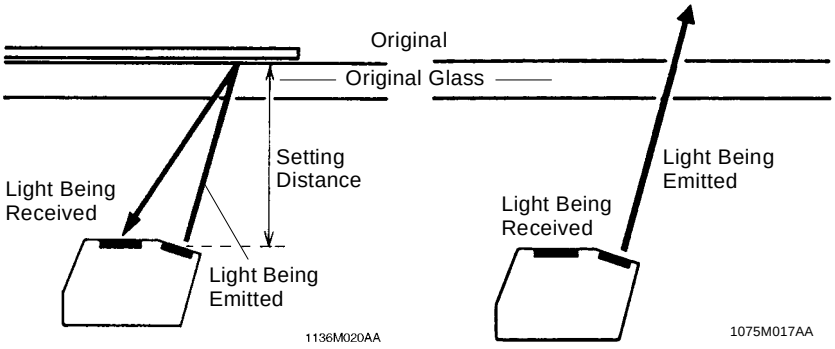
11-2. Construction of the Original Size Detecting Sensor

- The original size detecting sensors used in the system determine the distance between the sensor and the original, which enables the detection of originals with high image density (original density up to 0.8).
- Each sensor has two LEDs (LED1 and LED2) and one photo receiver (PSD).
- Two types of sensor are used: the CD (crosswise) and FD (feeding direction) sensors. Since the CD sensors are installed at a height different from FD sensors, each type has a different setting distance as detailed below.
  CD sensors : Setting distance 124 mm
  FD sensors : Setting distance 60 mm



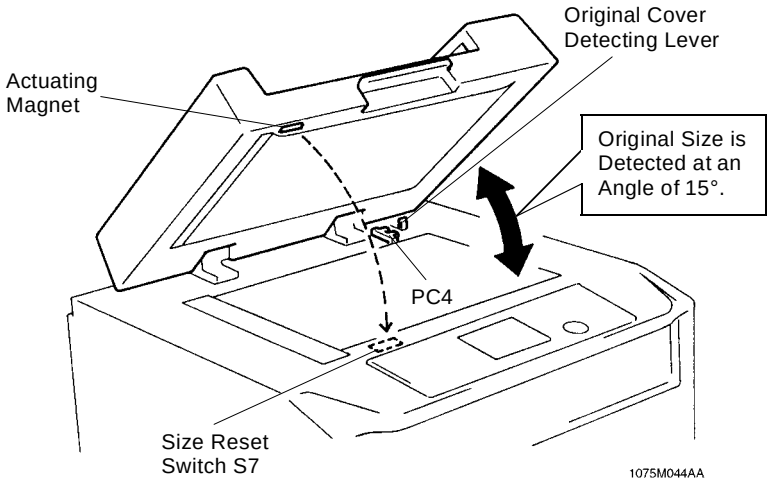
11-3. Original Detection Method

- When the photo receiver receives the reflected light of the two LEDs at an intensity that exceeds a predetermined level, the detection system determines that an original is placed within the setting distance of the sensor.

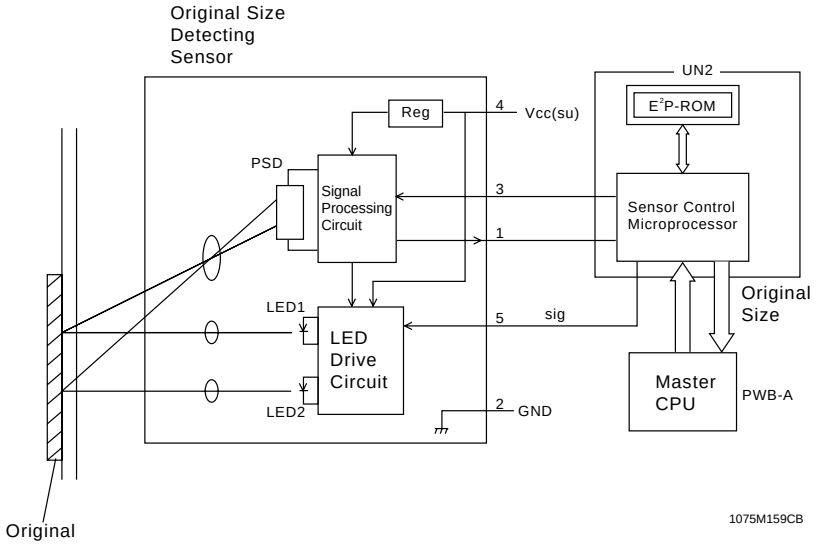


<When There is an Original> **<When There is No Original>**

- Raise the AFR-9, place the original on the Original Glass, and lower the AFR-9. The size of the original is determined when, at this time, the output from Original Cover Detecting Sensor PC4 goes from HIGH to LOW (i.e., when the AFR-9 is lowered to an angle of 15°).
- If the AFR-9 is kept raised (PC4 remains HIGH) with an original placed on the Original Glass, the size of the original is determined when the Start Key is pressed.
- The original size is read by the AFR-9 if it is used for making copies.
- The previous original size data is cleared when Size Reset Switch S7 is deactuated, which occurs when the AFR-9 is raised.



Each sensor has a built-in signal processing circuit that outputs 8-bit serial data to Original Size Detecting Board UN2.



11-4. Sensor Locations

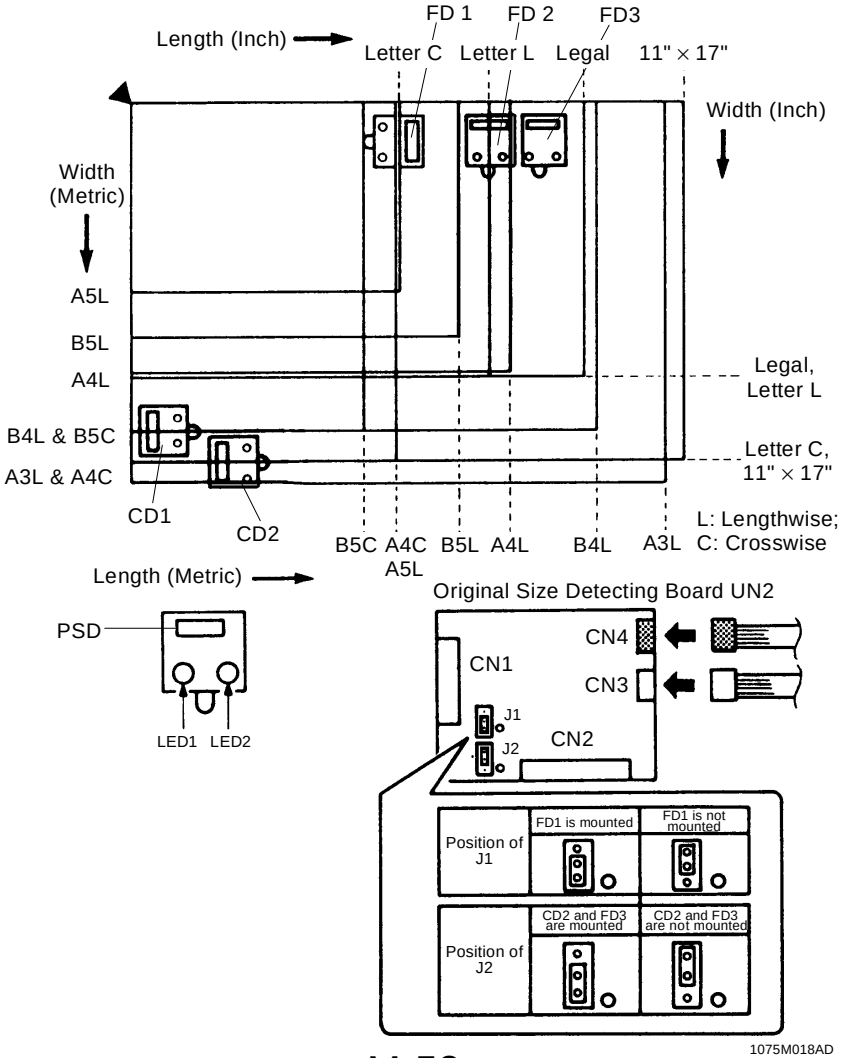
- The number and location of the Original Size Detecting Sensors varies depending on the marketing area, as given below.

O: Standard ●: Optional

Areas \ Sensors	CD1 (UN6)	CD2 (UN7)	FD1 (UN5)	FD2 (UN4)	FD3 (UN3)
Metric Areas	O	●	O	O	●
Inch Areas	O	●	●	O	●
(Hong Kong Area)	O	O	O	O	O

NOTE: If the optional sensors are installed, set Jumper Connector J2 on UN2 as illustrated below, connect CN3 and CN4 on UN2, and run the F7 operation.

For the installation of the optional Original Size Detecting Sensors, see DIS/REASSEMBLY, ADJUSTMENT.



11-5. Original Size Detection

- Original Size Detecting Board UN2 reads the output data provided by the original size detecting sensors. By comparing the data from each sensor with the threshold level, it determines whether there is an original placed on the Original Glass. UN2 then determines the size of the original according to the combination of the comparison results.
- The threshold level is set so that UN2 can determine whether there is an original or not by compensating for part-to-part variations and variations in the installed positions of the sensors. This procedure is performed by the F7 operation.

	FD1	FD2		FD3		CD1		CD2
Original Size	LED2	LED1	LED2	LED1	LED2	LED1	LED2	LED1
A3L	O	O	O	O	O	O	O	O
B4L	O	O	O	O	O	●	O	●
A4L	O	O	O	●	I	I	●	●
A5L Invoice: 5-1/2" × 8-1/2"	O	●	●	●	I	I	●	●
A4C	O	●	●	●	●	O	O	O
Letter L: 8-1/2" × 11"	O	O	●	●	●	●	●	●
11" × 17"	O	O	O	O	O	O	O	●
Legal: 8-1/2" × 14"	O	O	O	O	O	●	●	●
FLS: 8-1/2" × 13"	O	O	O	O	●	I	●	●
Letter C: 11"×8-1/2"	O	●	●	●	I	O	O	●
No Original	●	●	●	●	I	I	●	●

O: Original Present ●: Original Not Present

Notes:
- *UN2 does not use the data provided by LED1 of Original Size Detecting Sensor FD1 (UN5) and LED2 of CD2 (UN7) for the determination of the original size.*
- *Any non-standard size is rounded off to the nearest standard size.*

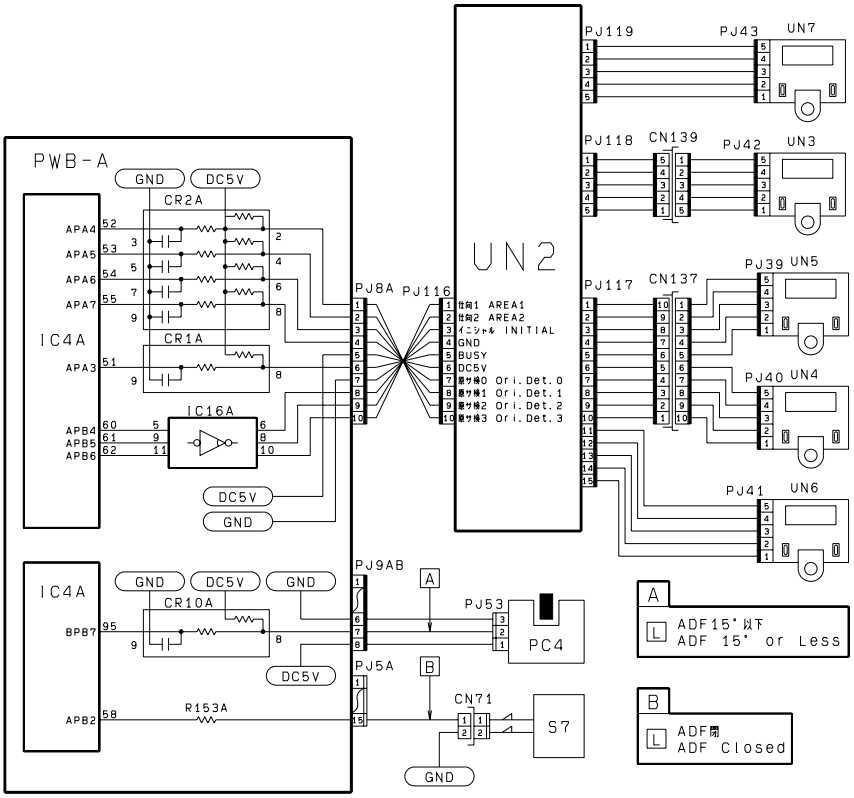
11-6. Original Size Detection Processing

The copier performs different processing for the detection of the original size under different copier conditions as follows.

	Copier Condition	Original Size Detection Processing
1	The Original Cover is left open. * Original Cover Detecting Sensor PC4 remains deactivated.	LEDs of Original Size Detecting Sensors UN3 to UN7 project light onto the original and the photo receivers of the sensors receive the reflected light and transmit the corresponding data to Original Size Detecting Board UN2. UN2 determines the original size based on the combination of the output data from the original size detecting sensors. UN2 divides the original size data into two parts and transmits 4-bit parallel data to Master Board PWB-A approx. every 73 msec. PWB-A combines the 4-bit original size data back into 8-bit data and stores it in memory.
2	The Original Cover is lowered to an angle less than 15°. * PC4 is activated.	The original size data is latched when PC4 is activated and the original size is set.
3	The Original Cover is completely lowered. * The magnets fitted to the Original Cover actuate Size Reset Switch S7.	The copier selects the appropriate paper size based on the set original size data and selects the paper source loaded with paper of that size, with the paper size indicated on the control panel (when in the Auto Paper or Size mode). If the copier is unable to find the target paper size, it gives a paper-empty warning message.
4	The Original Cover is raised to an angle less than 15° * S7 is deactuated. * PC4 remains activated.	The set original size data and selected paper size are reset.
5	The Original Cover is raised to an angle more than 15°. * PC4 is deactivated.	The copier proceeds with the next original size detection sequence.

Note: If the Start Key is pressed with the Original Cover raised (PC4 is deactivated and S7 deactuated), UN2 transmits the original size data available when the Start Key is pressed to Master Board PWB-A for the selection of the paper size.

11-7. Original Size Detection Circuit



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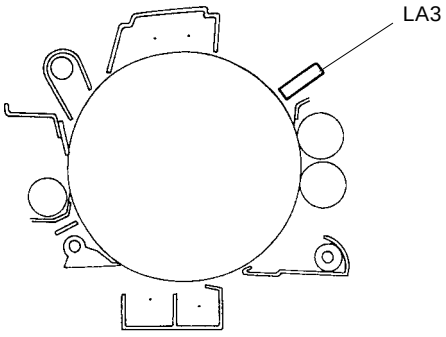
12 IMAGE ERASE LAMP

12-1. Image Erase Lamp LA3

- Any areas of charge which are not to be developed along the leading, trailing, front, and rear edges are neutralized by lighting up Image Erase Lamp LA3. This effectively prevents non-image areas from being dirtied and economizes on toner consumption. The lamp also functions to erase the leading and trailing edges, and the areas defined in the File Margin and Edge/Frame Erase mode, of the electrostatic latent image on the surface of the PC Drum.
- LA3 consists of 64 LEDs arranged at 5-mm pitch in a row. Different LEDs are turned ON at different timings depending on the size of the paper to be fed, zoom ratio, and mode (Margin, Erase).



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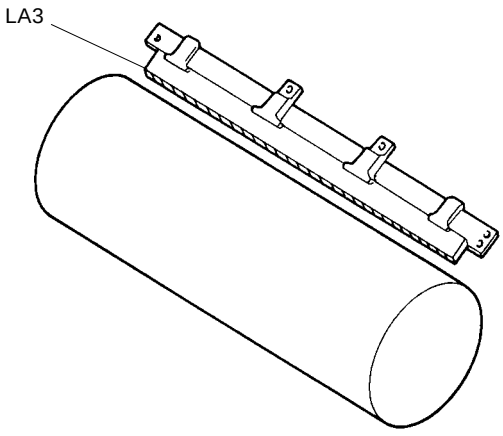

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12-2. Image Erase Lamp LA3 ON/OFF Control

LA3 is controlled by the following signals output from Master Board PWB-A.

Signal Name	Signal Output Pin	Function
DATA	IC1A-5	64-bit serial data signal controlling turning ON and OFF each of the 64 LEDs of LA3.
CLK	IC1A-3	Synchronizing signal to transmit data serially.
MODE	IC1A-4	Signal causing LA3 to latch the transmitted data.
STROBE	IC1A-2	Signal to turn ON LA3 according to the latched data.

= Flow of Each Signal =

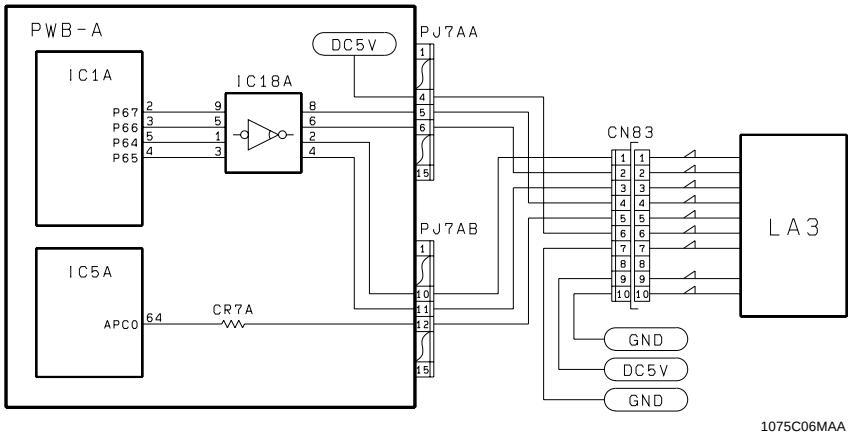
In synchronism with the CLK signal, the DATA signal is input to LA3.

↓

When all serial DATA signals are input, the MODE signal is input to LA3 and LA3 latches the data.

↓

As the STROBE signal is input to LA3, LEDs are turned ON according to the latched data.



12-3. Control for Each Erase Function

<LA3 ON Start Timing>
All LA3 LEDs are turned ON approx. 250 msec. after PC Drum Drive Motor M5 has been energized (see p. M-26) and the leading edge erase and edge erase controls are thereafter provided.

<LA3 OFF Timing>
The LA3 LEDs are turned OFF approx. 1,050 msec. after Scanner Control Processor Board PWB-J has output an SCEND signal, which completes a series of erase controls.

= Leading Edge Erase =

- The image along the leading edge of the electrostatic latent image on the surface of the PC Drum is erased by turning ON all LA3 LEDs. This prevents a black streak which would otherwise be produced by the shadow of the Original Width Scale. It also helps the leading edge of the paper to be easily separated from the Fusing Rollers.
- All LA3 LEDs are kept ON for a given period of time after PWB-J has output an Image Leading Edge signal (BASE). The leading edge erase is then switched to edge erase. The leading edge erase time varies depending on the zoom ratio, mode (File Margin, Edge/Frame Erase), and whether "Leading Edge Erase" of the Tech. Rep. Choice is set to "Yes" or "No." See the Table below.

	"Yes" (4 mm)				"No"			
	Normal	File Margin			Normal	File Margin		
		10	15	20		10	15	20
Erase Width (mm)	4	14	19	24	0	10	15	20
Timer (msec.)	75	105	120	135	60	90	105	120

* In an enlargement mode, the above erase widths are made greater according to the particular zoom ratio as follows.

Zoom Ratio	1.001 to 1.500	1.501 up
Erase Width Correction (mm)	+ 1. 7	+ 3. 4
Timer Correction (msec.)	+ 5	+ 10

= Edge Erase =

- The 64 LEDs are turned ON and OFF as necessary to erase unnecessary charges along both the front and rear edges of the image as well as those deposited in a reduction mode. This economizes on toner consumption and prevents black streaks from occurring on the copy.

- Which LEDs are turned ON for edge erase depends on the copy paper size and zoom ratio setting. In the full size and enlargement mode, it depends on the copy paper size, while in a reduction mode, it depends on the zoom ratio and copy paper size.

- Since the copy paper is fed through the center of the copier in this copier, LEDs are turned ON as detailed below for different copy paper sizes. We call the table LED ON Pattern A which is used to control edge erase in the full size and enlargement mode. Edge erase is also provided for multi bypass copying in which this copier detects the paper size (in the crosswise direction only).

LED ON Pattern A (For Metric Area)
L1: Frontmost LED; L64: Rearmost LED; O: ON; X: OFF; L appended to paper size: Lengthwise (L25 to L40 are OFF)

Paper Size	LEDs					
	L 1~L 8	L 9~L 16	L 17~L 24	L 41~L 48	L 49~L 56	L 57~L 64
A6L	OOOOOOOO	OOOOOOOO	OOOOOXXX	XXXOOOOO	OOOOOOOO	OOOOOOOO
B6L	OOOOOOOO	OOOOOOOO	OOXXXXXX	XXXXXXOO	OOOOOOOO	OOOOOOOO
A5L	OOOOOOOO	OOOOOOOO	XXXXXXXX	XXXXXXXX	OOOOOOOO	OOOOOOOO
B5L	OOOOOOOO	OOOOOXXX	XXXXXXXX	XXXXXXXX	XXXOOOOO	OOOOOOOO
A4L	OOOOOOOO	OOXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXOO	OOOOOOOO
B4L	OOOOOOXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXOOOOOO
A3L	OOXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXO

LED ON Pattern A (For Inch Area)
L1: Frontmost LED; L64: Rearmost LED; O: ON; X: OFF; L appended to paper size: Lengthwise (L25 to L40 are OFF)

Paper Size	LEDs					
	L 1~L 8	L 9~L 16	L 17~L 24	L 41~L 48	L 49~L 56	L 57~L 64
5-1/2" × 8-1/2"L	OOOOOOOO	OOOOOOOO	OXXXXXXX	XXXXXXXX	XXXOOOOO	OOOOOOOO
8-1/2 × 11"L	OOOOOOOO	OOXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXO	OOOOOOOO
10" × 14"L	OOOOOOXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXOOOOO
11" × 17"L	OOOOXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXOOO

- In this copier, the original is aligned with a corner for registration, while the copy paper is fed through the center of the copier. Because of that, the reference position of the image on the surface of the PC Drum varies according to the copy paper size. This defies a single LED ON pattern for the reduction mode, as was used conventionally. (Different LEDs are turned ON in the reduction mode according to the copy paper size.)
  If, however, a particular LED ON pattern is established for each reduction ratio and each paper size, it requires a much larger storage capacity and processing time than used in the conventional copiers. An LED ON pattern for varying reduction ratios is therefore established only with the paper size whose crosswise length is the maximum (A3 lengthwise = 297 mm). This pattern is called LED ON Pattern B shown on the next page. For other paper sizes, a particular reduction ratio is converted to that in the maximum paper size and the reduction ratio found is applied to LED ON Pattern B to find which LEDs are ON. This saves the storage space and processing time.

- The following formula is used to convert the actual reduction ratio to a ratio for the maximum paper size.

$$M_{NEW} = M + (PS_{MAX} - PS) / (2 \times PS_{MAX})$$

M_{NEW} : Conversion ratio M: Actual reduction ratio

PS_{MAX} : Maximum paper size (A3 lengthwise = 297 mm)

PS : Paper size to be used

- Edge erase in the reduction mode is controlled by the logical sum of the following: the LED ON data obtained by applying the ratio found through the above formula to LED ON Pattern B and the LED ON data obtained by applying the copy paper size to LED ON Pattern A.

Example: Copy paper size: A4 lengthwise, reduction ratio: 0.500

① When the variables are applied to the above formula:

$$M_{NEW} = 0.500 + (297 - 210) / 2 \times 297$$
$$= 0.646$$

② When 0.646 is applied to LED ON Pattern B:
We know that L42 to L64 are ON.

③ When A4 lengthwise is applied to LED ON Pattern A:
We know that L1 to L10 and L55 to L64 are ON.

The logical sum of ② and ③ are that L1 to L10 and L42 to L64 are ON.

LED ON Pattern B
O: ON; X: OFF (L1 to L32 are OFF)

Zoom Ratio		LEDs			
Inch Area	Metric Area	L33 to L40	L41 to L48	L49 to L56	L57 to L64
To 0.507	To 0.511	OOOOOOOO	OOOOOOOO	OOOOOOOO	OOOOOOOO
0.508 to 0.523	0.512 to 0.527	XOOOOOOO	OOOOOOOO	OOOOOOOO	OOOOOOOO
0.524 to 0.539	0.528 to 0.543	XXOOOOOO	OOOOOOOO	OOOOOOOO	OOOOOOOO
0.540 to 0.555	0.544 to 0.559	XXXOOOOO	OOOOOOOO	OOOOOOOO	OOOOOOOO
0.556 to 0.572	0.560 to 0.576	XXXXOOOO	OOOOOOOO	OOOOOOOO	OOOOOOOO
0.573 to 0.588	0.577 to 0.592	XXXXXOOO	OOOOOOOO	OOOOOOOO	OOOOOOOO
0.589 to 0.604	0.593 to 0.608	XXXXXXOO	OOOOOOOO	OOOOOOOO	OOOOOOOO
0.605 to 0.620	0.609 to 0.624	XXXXXXXO	OOOOOOOO	OOOOOOOO	OOOOOOOO
0.621 to 0.637	0.625 to 0.641	XXXXXXXX	OOOOOOOO	OOOOOOOO	OOOOOOOO
0.638 to 0.653	0.642 to 0.656	XXXXXXXX	XOOOOOOO	OOOOOOOO	OOOOOOOO
0.654 to 0.669	0.657 to 0.673	XXXXXXXX	XXOOOOOO	OOOOOOOO	OOOOOOOO
0.670 to 0.686	0.674 to 0.689	XXXXXXXX	XXXOOOOO	OOOOOOOO	OOOOOOOO
0.687 to 0.702	0.690 to 0.706	XXXXXXXX	XXXXOOOO	OOOOOOOO	OOOOOOOO
0.703 to 0.718	0.707 to 0.722	XXXXXXXX	XXXXXOOO	OOOOOOOO	OOOOOOOO
0.719 to 0.734	0.723 to 0.738	XXXXXXXX	XXXXXXOO	OOOOOOOO	OOOOOOOO
0.735 to 0.751	0.739 to 0.754	XXXXXXXX	XXXXXXXO	OOOOOOOO	OOOOOOOO
0.752 to 0.767	0.755 to 0.771	XXXXXXXX	XXXXXXXX	OOOOOOOO	OOOOOOOO
0.768 to 0.786	0.772 to 0.787	XXXXXXXX	XXXXXXXX	XOOOOOOO	OOOOOOOO
0.787 to 0.799	0.788 to 0.803	XXXXXXXX	XXXXXXXX	XXOOOOOO	OOOOOOOO
0.800 to 0.816	0.804 to 0.820	XXXXXXXX	XXXXXXXX	XXXOOOOO	OOOOOOOO
0.817 to 0.832	0.821 to 0.836	XXXXXXXX	XXXXXXXX	XXXXOOOO	OOOOOOOO
0.833 to 0.848	0.837 to 0.852	XXXXXXXX	XXXXXXXX	XXXXXOOO	OOOOOOOO
0.849 to 0.864	0.853 to 0.868	XXXXXXXX	XXXXXXXX	XXXXXXOO	OOOOOOOO
0.865 to 0.881	0.869 to 0.885	XXXXXXXX	XXXXXXXX	XXXXXXXO	OOOOOOOO
0.882 to 0.897	0.886 to 0.901	XXXXXXXX	XXXXXXXX	XXXXXXXX	OOOOOOOO
0.898 to 0.913	0.902 to 0.917	XXXXXXXX	XXXXXXXX	XXXXXXXX	XOOOOOOO
0.914 to 0.929	0.918 to 0.933	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXOOOOOO
0.930 to 0.946	0.934 to 0.950	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXOOOOO
0.947 to 0.962	0.951 to 0.966	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXOOOO
0.963 to 0.978	0.967 to 0.982	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXOOO
0.979 to 0.994	0.983 to 0.998	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXOO
0.995 to	0.999 to	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXO

= Trailing Edge Erase =

- The image along the trailing edge of the electrostatic latent image on the surface of the PC Drum is erased by turning ON all LA3 LEDs. This prevents the Fusing Rollers from being dirtied by excess toner and offset from occurring as the trailing edge of the paper is fused.

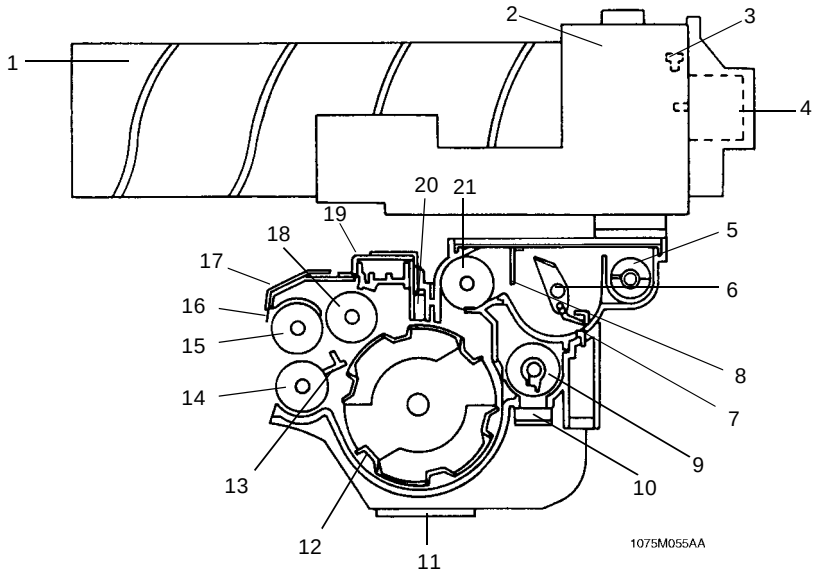
- The timing at which the trailing edge erase is switched from edge erase varies depending on the mode (File Margin, Edge/Frame Erase) and whether "Trailing Edge Erase" of the Tech. Rep. Choice is set to "Yes" or "No," with reference to the SCEND signal output from PWB-J. See the Table below.

	"Yes" (4 mm)				**"No"**			
	Normal	**File Margin**			**Normal**	**File Margin**		
		10	15	20		10	15	20
Erase Width (mm)	4	14	19	24	0	10	15	20
Timer (msec.)	255	225	210	195	270	240	225	210

13 DEVELOPING UNIT

13-1. Construction

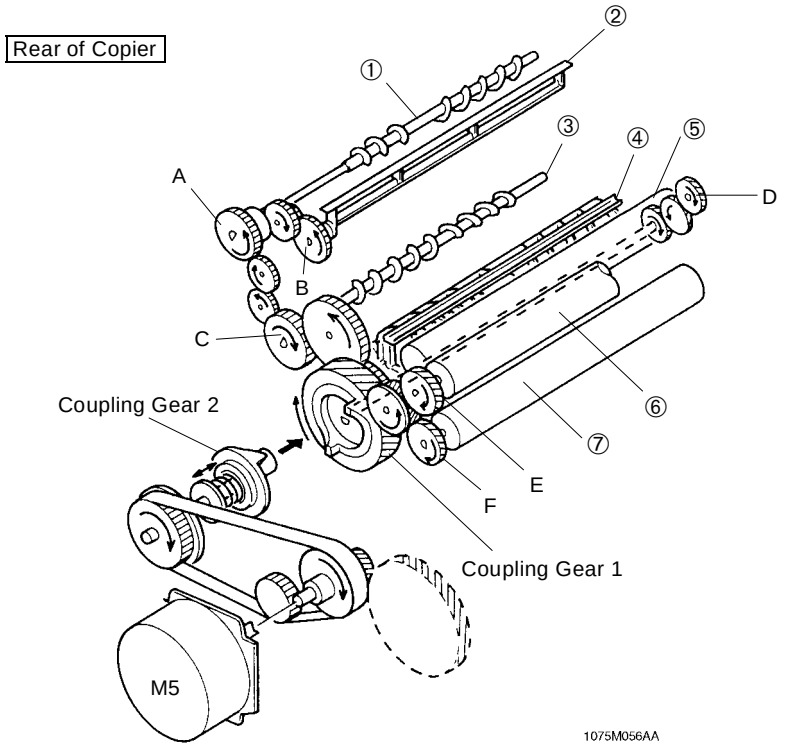
- This copier employs the New Micro-Toning developing system equipped with three Sleeve/Magnet Rollers.
- The toner fed up to the Toner Replenishing Sleeve/Magnet Roller is supplied to the turning 1st and 2nd Sleeve/Magnet Rollers. From there, it is supplied to the electrostatic latent image on the surface of the PC Drum to form a visible, developed toner image of the original.
- Toner is supplied from the Toner Bottle by way of the Main Hopper and Sub Hopper.



1	Toner Bottle	12	Bucket Roller
2	Toner Bottle Holder	13	Developer Regulator
3	Toner Bottle Home Position Sensor PC30	14	2nd Sleeve/Magnet Roller
4	Main Hopper Toner Replenishing Motor M14	15	1st Sleeve/Magnet Roller
5	Sub Hopper Toner Conveying Screw	16	Developer Scattering Prevention Mylar
6	Sub Hopper Toner Agitating Lever	17	Developer Scattering Prevention Plate
7	Sub Hopper Toner Empty Switch S8	18	Toner Replenishing Sleeve/Magnet Roller
8	Toner Regulator	19	Doctor Blade
9	Developer Conveying/Agitating Screw	20	Magnet Sheet
10	ATDC Sensor	21	Sub Hopper Toner Replenishing Roller
11	Developing Unit Dehumidifying Heater H6		

13-2. Developing Unit Drive Mechanism

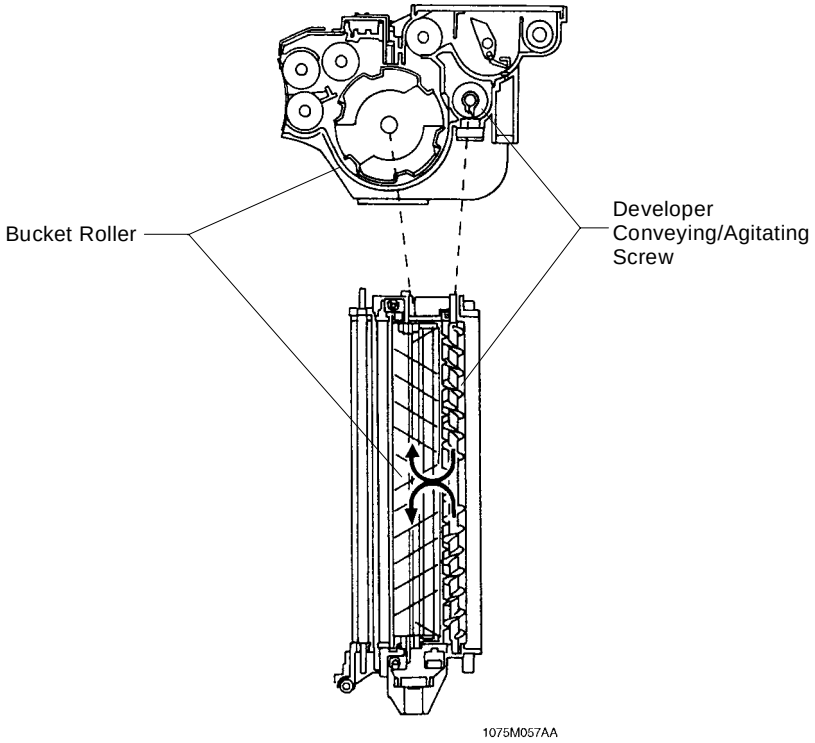
- Drive for the Developing Unit comes from PC Drum Drive Motor M5.
- Coupling Gear 2 is spring-loaded. If the protruding part of Coupling Gear 1 makes contact with that of Coupling Gear 2 when the PC Unit is slid into the copier, spring-loaded Coupling Gear 2 is pushed back toward the rear of the copier allowing the PC Unit to be slid into position. When drive is later transmitted to the Developing Unit, Coupling Gear 2 is pushed to the front by the tension of the spring to mesh positively with Coupling Gear 1.
- The following parts are driven by M5. Given in ( ) are the drive gears keyed to the illustration.
  - Sub Hopper Toner Conveying Screw ① (A)
  - Sub Hopper Toner Agitating Lever ② (B)
  - Developer Conveying/Agitating Screw ③ (C)
  - Bucket Roller ④ (Coupling Gear 1)
  - Toner Replenishing Sleeve/Magnet Roller ⑤ (D)
  - 1st and 2nd Sleeve/Magnet Roller ⑥, ⑦ (E, F)



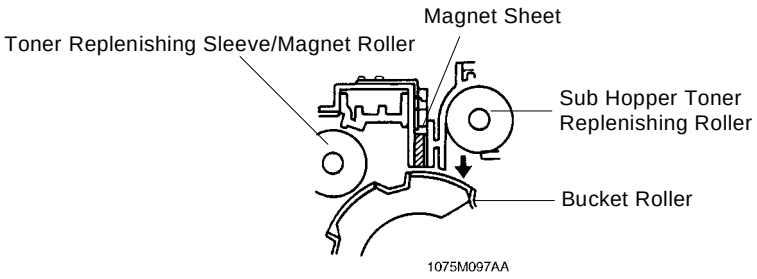
Note: To ensure that a stabilized amount of developer is conveyed, the Toner Replenishing Sleeve/Magnet Roller is turned at a rate approx. 3/5 of that of the 1st and 2nd Sleeve/Magnet Roller.

13-3. Developer Flow

When drive from PC Drum Drive Motor M5 is transmitted, the Developer Conveying/Agitating Screw, Bucket Roller, and Toner Replenishing, 1st, and 2nd Sleeve/Magnet Rollers start turning. As a result, the developer and toner flow along a figure-8-shaped path as indicated by the arrows below, thus mixing and agitating toner and carrier efficiently.



*1: The Magnet Sheet prevents the Bucket Roller from supplying toner from the Sub Hopper directly onto the Toner Replenishing Sleeve/Magnet Roller without mixing it well with the developer.



From the Sub Hopper, an even amount of toner is supplied over the full length of the Bucket Roller by the Sub Hopper Toner Replenishing Roller. (For details, see 13-7. Sub Hopper Toner Replenishing Mechanism.)

↓

The toner is then mixed together with the developer inside the Bucket Roller and conveyed to both ends of the Bucket Roller. From the two ends, it is fed to the Developer Conveying/Agitating Screw which further agitates the developer.

↓

The toner-to-carrier ratio of the developer, which has been conveyed to the center of the Developer Conveying/Agitating Screw, is sensed by ATDC Sensor UN8. (See p. M-75.)

↓

At the center of the Developer Conveying/Agitating Screw, the developer is again fed onto the Bucket Roller and directed towards the front and rear of the Bucket Roller by the Oval Plate, which ensures that the developer is fed evenly over the Toner Replenishing Sleeve/Magnet Roller.

Part of the developer which was not fed to the Toner Replenishing Sleeve/Magnet Roller is fed back again via both ends of the Bucket Roller to the Developer Conveying/Agitating Screw.

The developer forms a brush on the Toner Replenishing Sleeve/Magnet Roller by the magnetic poles of different magnetic forces and the height of the developer brush is regulated by the Doctor Blade. It is then supplied to the 1st Sleeve/Magnet Roller.

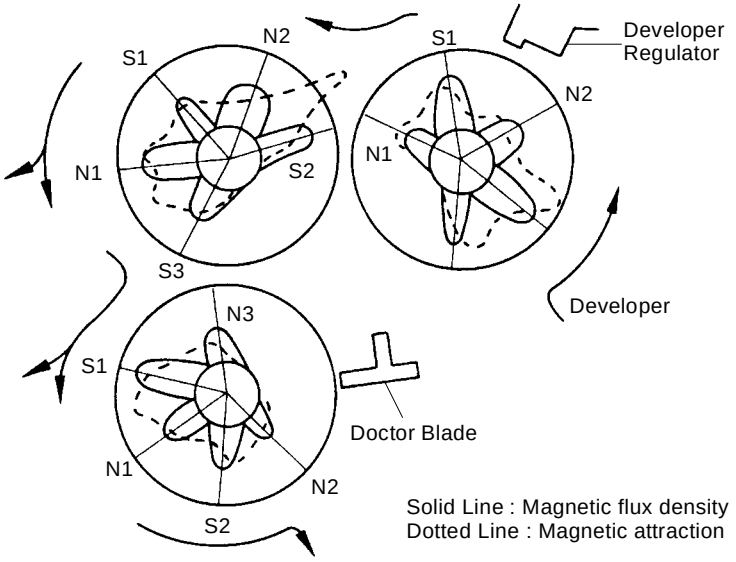
The developer is attracted onto the surface of the 1st Sleeve/Magnet Roller by the poles with varying magnetic forces and is carried to the point of development by the turning 1st Sleeve/Magnet Roller. The developer not used for development is supplied to the 2nd Sleeve/Magnet Roller.

↓

The developer is attracted onto the surface of the 2nd Sleeve/Magnet Roller by the poles with varying magnetic forces and is carried to the point of development by the turning 2nd Sleeve/Magnet Roller. The developer not used for the development is carried back to the Developer Conveying/Agitating Screw via the Bucket Roller.

13-4. Magnetic Pole Positioning

- Each Magnet Roller of the Toner Replenishing, 1st, and 2nd Sleeve/Magnet Rollers is made up of five magnets asymmetrically packed.
- The Bias Plate at the front of the Developing Unit ensures that the angle of principal magnetic pole N1 of the 1st Sleeve/Magnet Roller and that of principal magnetic pole S1 of the 2nd Sleeve/Magnet Roller will not be changed with respect to the center of the PC Drum.
- The torsion coil springs at the front and rear ends of the Developing Unit press the Ds Positioning Collars of the 1st and 2nd Sleeve/Magnet Rollers tightly against the PC Drum, thus keeping constant the distance between each Sleeve/Magnet Roller and the PC Drum.



<Toner Replenishing Sleeve/Magnet Roller>

N3, S2 : The developer fed by the Bucket Roller is attracted onto the surface of the Sleeve Roller.

N2 : The developer brush is formed by this pole. The height of the brush is moderate before the brush is regulated by the Doctor Blade.

S1 : This pole functions to hold the developer brush firmly onto the surface of the Sleeve Roller as it is fed onto the point of supply to the 1st Sleeve/Magnet Roller.

N1 : The developer brush is formed so that the developer attracted onto the Toner Replenishing Sleeve/Magnet Roller is efficiently transferred onto the 1st Sleeve/Magnet Roller.

<1st Sleeve/Magnet Roller>

S2 : The developer fed by the Toner Replenishing Sleeve/Magnet Roller is positively attracted onto the surface of the Sleeve Roller.

N2, S1 : Two poles are provided between the relatively wide gap between S2 and N1.

N1 : This is the principal magnetic pole and its lines of magnetic flux at the point of development are perpendicular to the surface of the PC Drum. Therefore, when toner is attracted to the latent image, the carrier is firmly held onto the Sleeve Roller.

S3 : The developer brush is formed so that the developer attracted onto the 1st Sleeve/Magnet Roller and not used for development is efficiently transferred onto the 2nd Sleeve/Magnet Roller.

<2nd Sleeve/Magnet Roller>

N3 : The developer fed by the 1st Sleeve/Magnet Roller is positively attracted onto the surface of the Sleeve Roller.

S1 : This is the principal magnetic pole and its lines of magnetic flux at the point of development are perpendicular to the surface of the PC Drum.

S1-N1 : A strong magnetic force is provided between these two poles to ensure that the carrier is firmly held onto the Sleeve Roller.

S2-N2 : The magnetic flux density between these two poles is made low to ensure that the developer remaining on the Sleeve Roller is smoothly recycled to the Developer Mixing Chamber. The developer which has fallen off the Sleeve Roller is mixed together with fresh toner in the Developer Mixing Chamber.

N2-N3 : The interval between these two poles is wide and there is the Developer Regulator installed between them. This prevents the developer remaining on the Sleeve Roller from being fed back to the PC Drum.

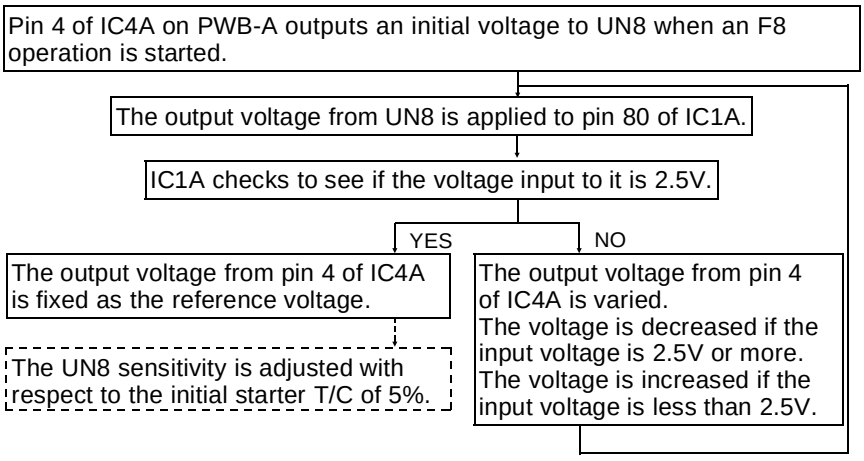
13-5. ATDC Sensor

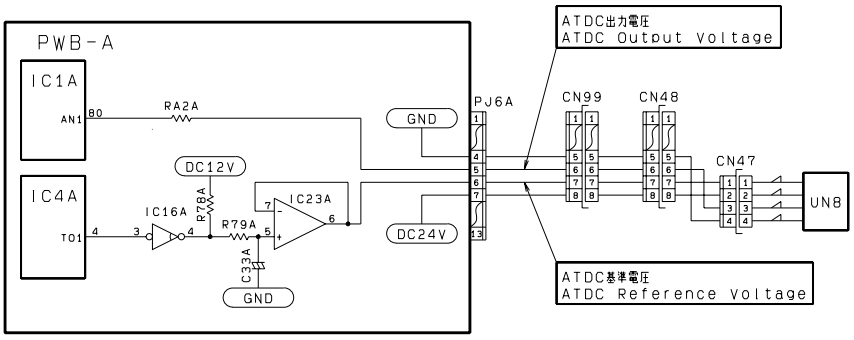
<ATDC Sensor>

- ATDC Sensor UN8 is installed at the center of the Developer Conveying/Agitating Screw on the underside of the Developer Mixing Chamber, over which all developer flows as it moves along a figure-8-shaped path.
- It detects the varying toner-to-carrier ratio (T/C) of the developer, which is circulated through the chamber, as changes in the magnetic flux density. The magnetic flux density is converted to a corresponding voltage value which is applied to pin 80 of IC1A of Master Board PWB-A.
- There is a cleaning mylar at the center of the Developer Conveying/Agitating Screw. It ensures that fresh developer moves over UN8 at all times, thus ensuring detection of accurate T/C.

<ATDC Sensor Automatic Adjustment>

Running an F8 operation will automatically adjust the output of the ATDC Sensor.


Pin 4 of IC4A on PWB-A outputs an initial voltage to UN8 when an F8 operation is started.
The output voltage from UN8 is applied to pin 80 of IC1A.
IC1A checks to see if the voltage input to it is 2.5V.
YES
NO
The output voltage from pin 4 of IC4A is fixed as the reference voltage.
The UN8 sensitivity is adjusted with respect to the initial starter T/C of 5%.
The output voltage from pin 4 of IC4A is varied.
The voltage is decreased if the input voltage is 2.5V or more.
The voltage is increased if the input voltage is less than 2.5V.



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Once the ATDC Sensor automatic adjustment is completed, varying T/C's may be compared with the UN8 output voltages as follows.

T/C	UN8 Output Voltage
3.0%	3.17 V
3.5%	3.00 V
4.0%	2.84 V
4.5%	2.67 V
5.0%	2.50 V
5.5%	2.33 V

T/C	UN8 Output Voltage
6.0%	2.16 V
6.5%	2.00 V
7.0%	1.83 V
7.5%	1.66 V
8.0%	1.49 V

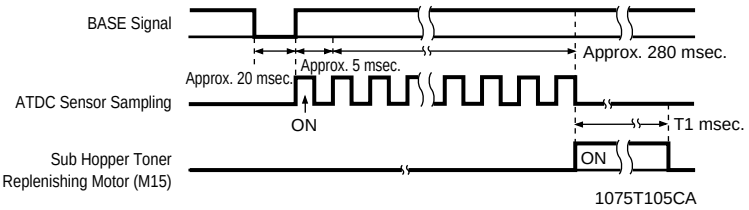
<T/C Control Level Setting>
The T/C control level is set by AIDC Sensor control with reference to the initial 5% at setting-up. (For details, see p. M-21.)Toner replenishing and other controls are therefore provided so that the ATDC Sensor outputs are according to the "T/C control level set by AIDC Sensor control."

<Toner Replenishing Control by ATDC Sensor>

- UN8 samples T/C at the following timings for each copy.

<ATDC Sampling Timing>

Approx. 20 msec. after a HIGH BASE signal, which is output from pin 2 of IC2J on PWB-J for each scan motion, has been input to pin 96 of IC5A on PWB-A, the ATDC Sensor takes readings at about 5-msec. intervals for about 280 msec. (i.e., taking about 56 readings).



T1 msec. : Varies with the ATDC Sensor output voltage and paper size. For details, see below.

- The ATDC Sensor output voltages are applied to pin 80 of IC1A on PWB-A. The value of the readings sampled is compared with the "T/C control level set by AIDC Sensor control" and toner is replenished in either of the following four modes (the figures are based on A4 paper).

	Compared with T/C Control Level	Toner Replenishing Time (T1)	Amount Replenished
① Large amount replenishing	Lower by 0.5% or more	980msec. (*1)	Approx. 163 mg
② Small amount replenishing	Lower by less than 0.5%	700msec. (*1)	Approx. 117 mg
③ Fixed amount replenishing	Higher by less than 1%	70msec. (*1)	Approx. 12 mg
④ No toner replenishing	Higher by 1% or more	————	————

<NOTE>

The toner replenishing time and the amount of toner replenished vary according to the paper size.

(*1): M15 is actually energized 50 msec. earlier to take into account the rise time of the motor.

13-6. Control for Abnormally Low T/C

Any of the following faulty conditions occurring during a copy cycle could cause a steep drop in T/C, resulting in image trouble and carrier scattering. When ATDC Sensor UN8 detects an abnormally low T/C due to any of these reasons during a copy cycle, the self recovery function of the copier interrupts the current copy cycle to replenish the supply of toner temporarily.

① Defective Sub Hopper Toner Replenishing Motor M15

② Plugged toner supply path

③ Defective Sub Hopper Toner Empty Switch S8

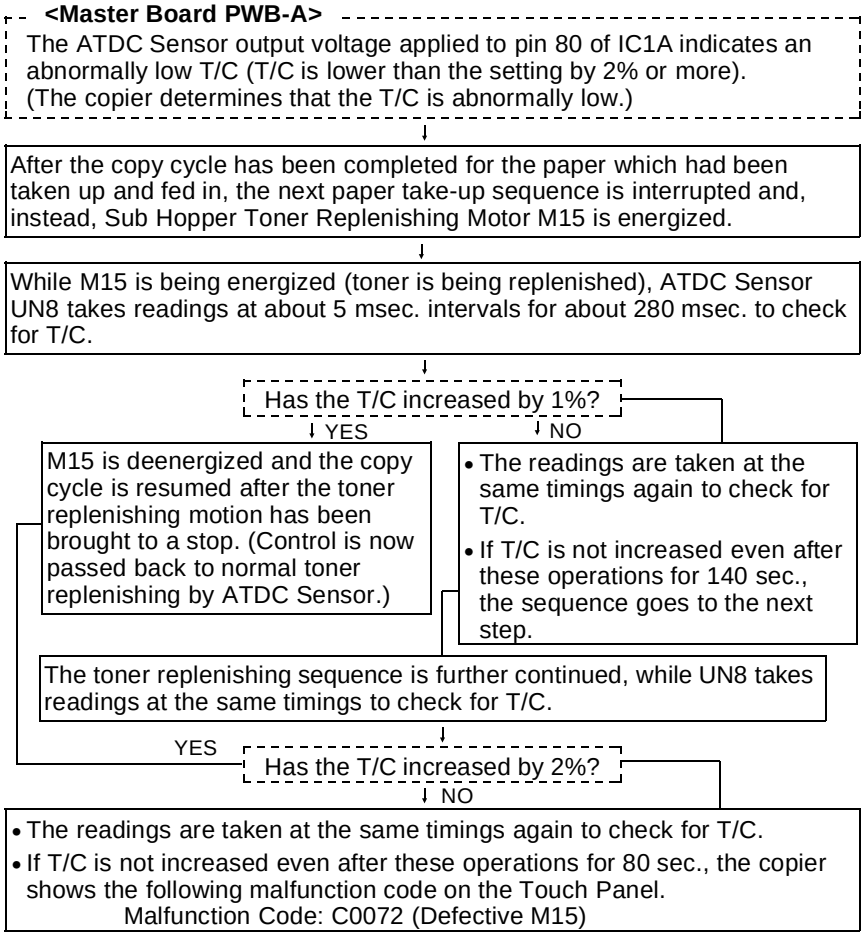
④ A large number of copies are made from originals with image density higher than the specifications.

<Detecting Conditions>

- If the T/C detected by UN8 is lower than the "T/C control level set by AIDC Sensor control" by 2% or more, the copier determines that the T/C is abnormally low.
- An abnormally low T/C is not detected, however, when a toner-empty condition has been detected or UN8 found faulty.

If an abnormally low T/C is detected, the paper take-up motion will be brought to an immediate stop and M15 is energized to replenish the supply of toner.

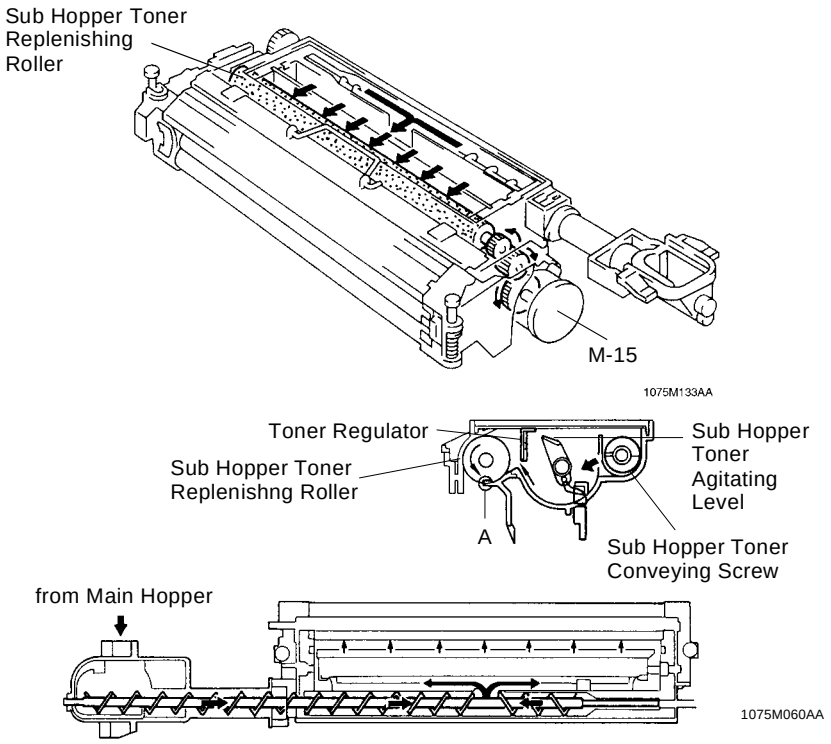
= Toner Replenishing Sequence Performed When an Abnormally Low T/C is Detected =


<Master Board PWB-A>
The ATDC Sensor output voltage applied to pin 80 of IC1A indicates an abnormally low T/C (T/C is lower than the setting by 2% or more). (The copier determines that the T/C is abnormally low.)
After the copy cycle has been completed for the paper which had been taken up and fed in, the next paper take-up sequence is interrupted and, instead, Sub Hopper Toner Replenishing Motor M15 is energized.
While M15 is being energized (toner is being replenished), ATDC Sensor UN8 takes readings at about 5 msec. intervals for about 280 msec. to check for T/C.
Has the T/C increased by 1%?
YES
NO
M15 is deenergized and the copy cycle is resumed after the toner replenishing motion has been brought to a stop. (Control is now passed back to normal toner replenishing by ATDC Sensor.)
• The readings are taken at the same timings again to check for T/C.
• If T/C is not increased even after these operations for 140 sec., the sequence goes to the next step.
The toner replenishing sequence is further continued, while UN8 takes readings at the same timings to check for T/C.
YES
Has the T/C increased by 2%?
NO
• The readings are taken at the same timings again to check for T/C.
• If T/C is not increased even after these operations for 80 sec., the copier shows the following malfunction code on the Touch Panel.
Malfunction Code: C0072 (Defective M15)

13-7. Sub Hopper Toner Replenishing Mechanism/Control

<Toner Replenishing Mechanism>

- Toner is replenished from the Sub Hopper when Sub Hopper Toner Replenishing Motor M9 at the front of the PC Unit is energized to turn the Sub Hopper Toner Replenishing Roller.
- The Sub Hopper Toner Replenishing Roller is made of polyurethane foam. It supplies toner along the full length of the roller in a powder form to the Developer Mixing Chamber. (The powdered toner makes for improved triboelectric charge efficiency.)
- The Sub Hopper Toner Replenishing Roller is positioned so that part A of the housing is constantly deforming the roller. This is done so that toner on the roller can be easily flipped off down onto the Bucket Roller as the roller is turned.
- The Sub Hopper Toner Conveying Screw and Sub Hopper Toner Agitating Lever are driven by PC Drum Drive Motor M5 (see p. M-XX). Regardless of whether M15 is energized or not, therefore, they convey toner from the Main Hopper to the Sub Hopper, mix it, and further supply it to the Sub Hopper Toner Replenishing Roller.
- There is a Toner Regulator placed between the Sub Hopper Toner Agitating Lever and Sub Hopper Toner Replenishing Roller. It limits the amount of toner sticking to the surface of the Sub Hopper Toner Replenishing Roller.



PC Drum Drive Motor M5 is energized.

↓

Toner supplied from the Main Hopper is conveyed by the Sub Hopper Toner Conveying Screw and fed at the center of the screw to the Sub Hopper (Sub Hopper Toner Agitating Lever).

↓

The Sub Hopper Toner Agitating Lever evens out the toner towards the front and rear, while agitating it. Toner is then fed under the Toner Regulator onto the Sub Hopper Toner Replenishing Roller.

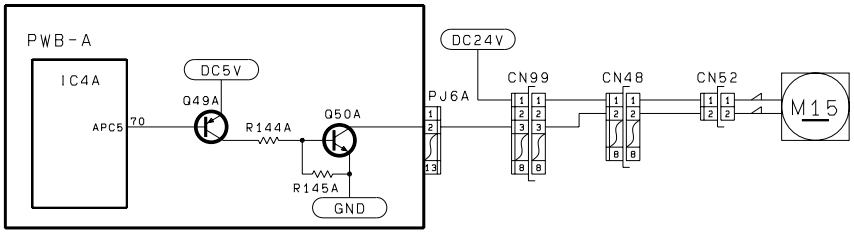
Sub Hopper Toner Replenishing Motor M15 is energized.

↓

The Sub Hopper Toner Replenishing Roller is turned by a gear train to feed toner into the Developer Mixing Chamber.

<Toner Replenishing Control>

- When the copier determines that toner replenishing is to be carried out based on the ATDC output voltages, M15 is controlled by the signal output from pin 70 of IC4A on PWB-A.
- For the timing at which M15 is energized (toner replenishing timing) and the period of time during which M15 is kept energized (toner replenishing time), see 13-5. ATDC Sensor.



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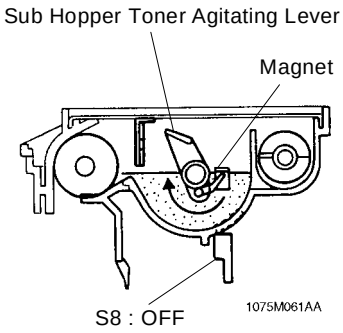
13-8. Sub Hopper Toner Empty Detecting Mechanism/Control

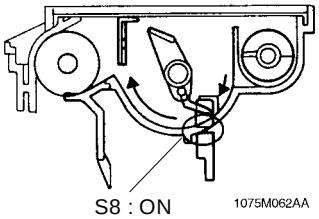
<Toner Empty Detecting Mechanism>

- A toner-empty condition in the Sub Hopper is detected by the magnet that turns at the same time as the Sub Hopper Toner Agitating Lever to actuate and deactuate Sub Hopper Toner Empty Switch S8.
- While the amount of toner in the Sub Hopper is more than the predetermined one, the magnet is pushed upwards by the toner as it first meets the toner during its downward swing. It thereafter turns with a smaller turning radius, leaving a greater distance from S8. S8 therefore remains deactuated.
- When the amount of toner in the Sub Hopper is less than the predetermined one, the magnet turns with a greater turning radius and actuates S8 as it nears S8 during its downward swing. This results in S8 being repeatedly actuated and deactuated. When the cumulative period of time during which S8 remains actuated exceeds a predetermined value, the copier CPU determines that the Sub Hopper has run out of toner.

= Toner Full =



= Toner Empty =



<Toner Empty Detecting Control>

= Detection Control =

- A toner-empty condition of the Sub Hopper is detected by the output from Sub Hopper Toner Empty Switch S8 while the Developing Unit remains energized (PC Drum Drive Motor M5 remains energized).

S8 is actuated.

↓

Master Board PWB-A

A LOW Sub Hopper Toner Empty signal is input to pin 99 of IC4A.

↓

Main Hopper Toner Replenishing Motor M14 is energized to turn the Toner Bottle one turn, thereby supplying toner from the Main Hopper. (See p. M-85.)

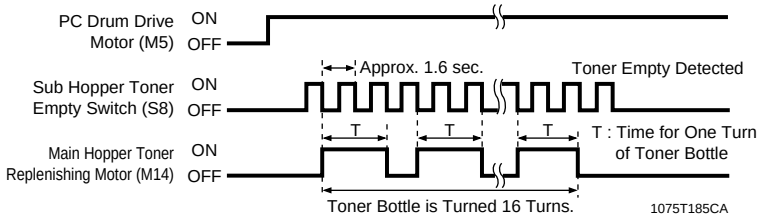
↓

The Toner Bottle is turned one turn at a time to supply toner to the Sub Hopper until the Sub Hopper Toner Empty signal being input to pin 99 of IC4A remains HIGH for a continuous 2-sec. period.

The above operation is repeated and, if the signal does not go HIGH even after 16 turns of the Toner Bottle, the Toner Bottle will not be turned the next time.

↓

The copier CPU determines that it is a toner-empty condition and gives a toner-empty message on the Touch Panel.



= Control After Detection of Toner-Empty Condition =

Open the Upper Front Door, change the Toner Bottle, and close the Upper Front Door.

↓

Master Board PWB-A

Main Hopper Toner Replenishing Motor M14 is energized to continuously turn the Toner Bottle, thereby supplying toner from the Main Hopper to Sub Hopper.

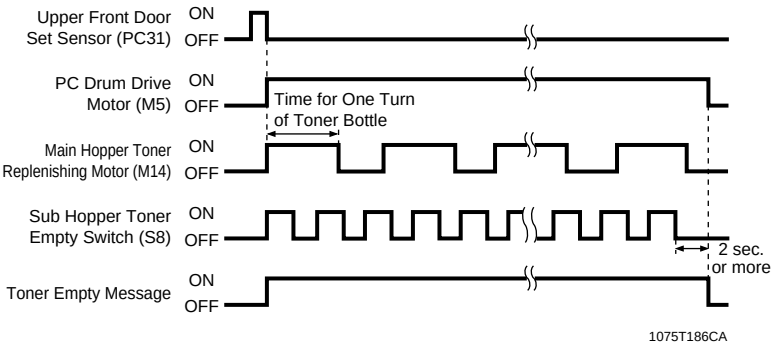
↓

M14 is deenergized to stop the Toner Bottle when the signal from Sub Hopper Toner Empty Switch S8 remains HIGH for a continuous 2-sec. period.

↓

The toner-empty message on the Touch Panel is turned OFF.

Note: If opening and closing the Upper Front Door does not reset the toner-empty message, open and close the door once again.



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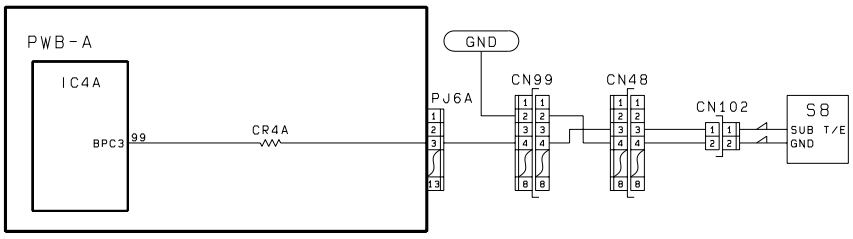

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13-9. Main Hopper Toner Replenishing Mechanism/Control

When a toner-empty condition is detected in the Sub Hopper, Main Hopper Toner Replenishing Motor M14 is energized to turn the Toner Bottle, thereby supplying toner from the Main Hopper to Sub Hopper.

<Mechanism>

= Toner Replenishing to Sub Hopper =

Main Hopper Toner Replenishing Motor M14 is energized.

↓

The coupling is turned by a gear train.

↓

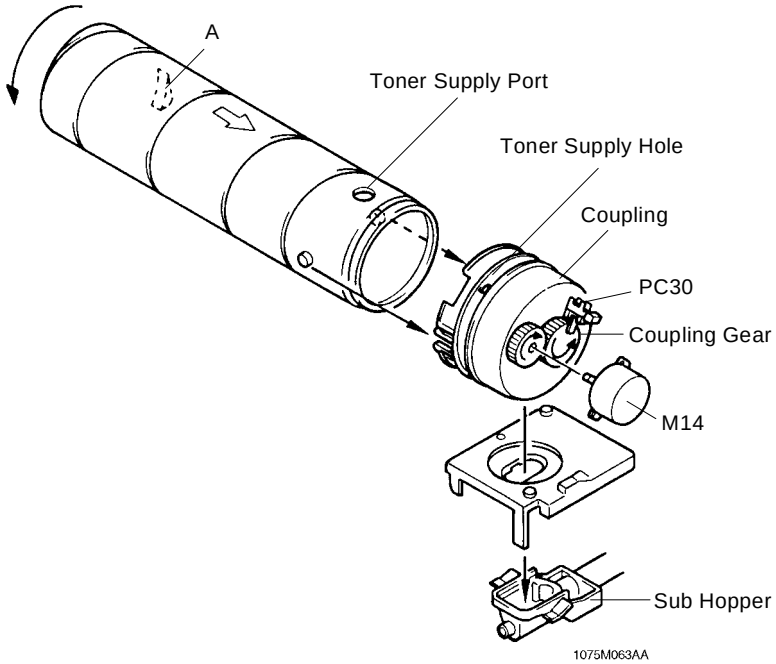
Since the two pins on the Toner Bottle fit into the slots in the coupling, the coupling and Toner Bottle are turned together.

↓

When the Toner Bottle turns, toner in the Toner Bottle is guided along the spiral ridge in the bottle towards the front end of the bottle. During rotation, protrusion A causes the bottle to vibrate, ensuring smooth movement of the toner through the bottle.

↓

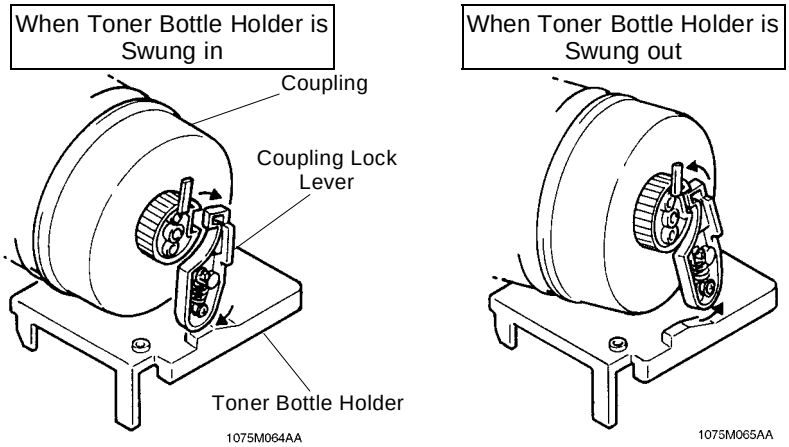
Since the Toner Supply Port in the Toner Bottle is aligned with the Toner Supply Hole in the coupling, toner in the Toner Bottle drops down as the supply hole becomes located at the bottom.



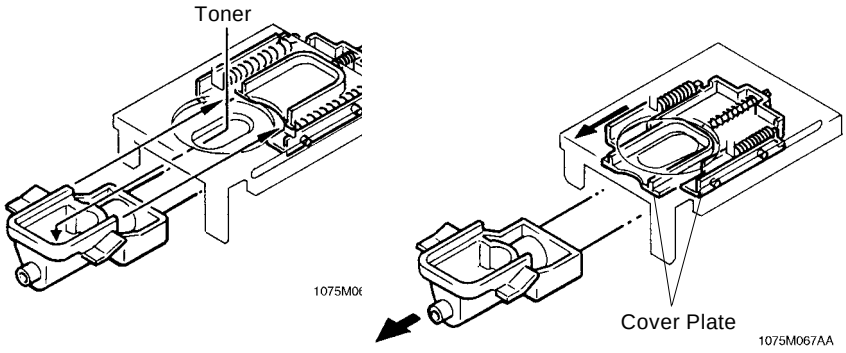
= Coupling Position Detection =

The home position of the coupling of the Toner Bottle is detected when the light blocking plate integrated with the Coupling Gear blocks Toner Bottle Home Position Sensor PC30.

= Coupling Locking Mechanism =
The coupling is locked in position to prevent it from moving when the Toner Bottle is removed or installed. When the Toner Bottle Holder is swung out to the front, the tension of the spring causes the Coupling Lock Lever to hook the coupling. When the holder is swung into position, the bottom of the Coupling Lock Lever is pushed by the protrusion of the holder, disengaging the Coupling Lock Lever from the coupling.

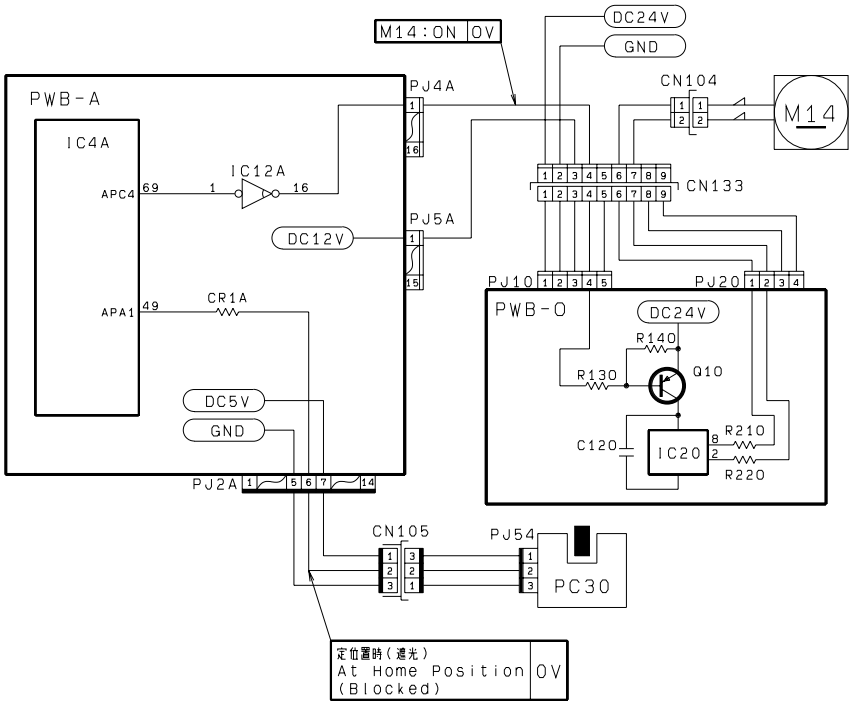


= Toner Supply Hole Covering/Uncovering Mechanism =
The Toner Supply Hole in the Toner Bottle Holder is covered to prevent toner from dropping into the inside of the copier when the PC Unit is slid out of the copier.
When the PC Unit is in the copier, the Sub Hopper keeps the Toner Supply Hole uncovered. When the PC Unit is slid out of the copier, the tension of the springs slides the Cover Plate to the front, covering the Toner Supply Hole.



<Main Hopper Toner Replenishing Motor M14 Control>

- Main Hopper Toner Replenishing Motor M14 is energized and deenergized by the output from pin 69 of IC4A on Master Board PWB-A.
- M14 is energized when a toner-empty condition is detected in the Sub Hopper (see p. M-83). It is deenergized when Toner Bottle Home Position Sensor PC30 is blocked, at which time the Toner Supply Port of the Toner Bottle is located on the top.



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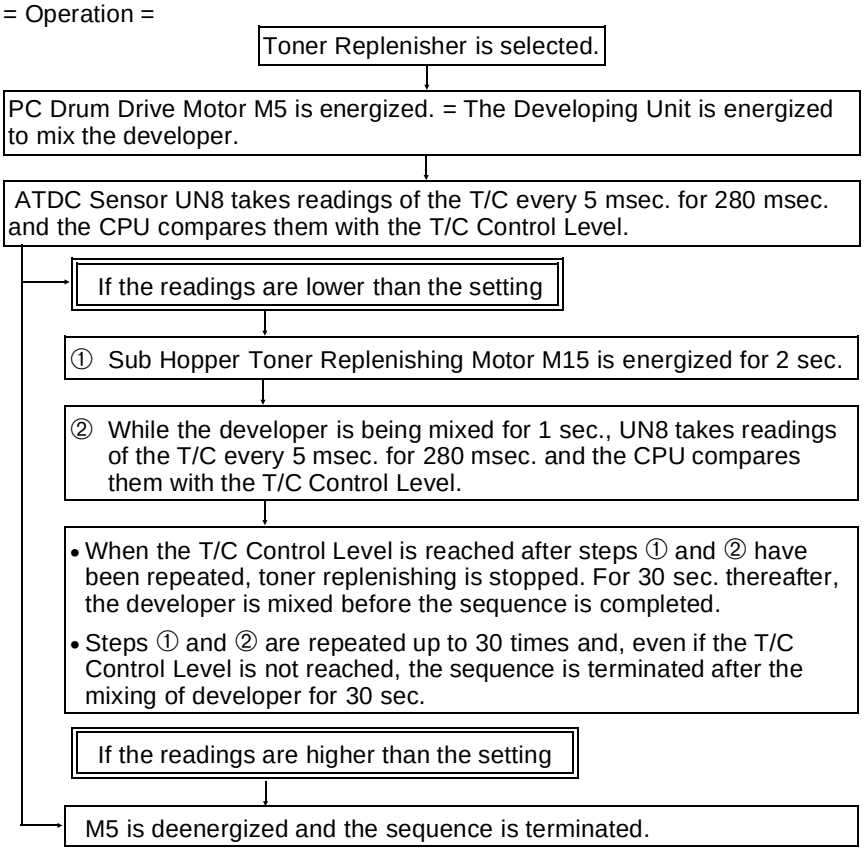
13-10. Auxiliary Toner Replenishing (User Mode Function)

- The copier is set into the Auxiliary Toner Replenishing mode when the User Mode Key on the control panel is pressed and then Toner Replenisher selected on the Touch Panel. It drives the Sub Hopper to let it feed toner into the Developing Unit, thereby increasing the toner-to-carrier ratio of the developer.
- When Toner Replenisher is selected, the CPU compares the current toner-to-carrier ratio with the "T/C Control Level" set by the AIDC Sensor T/C Control. If the current T/C ratio is lower than the setting, auxiliary toner replenishing is carried out. If the ratio is higher than the setting, the Developing Unit is driven to mix the developer well.
- Toner replenishing is intermittent to prevent toner from scattering and to ensure that toner and carrier are sufficiently triboelectrically charged.

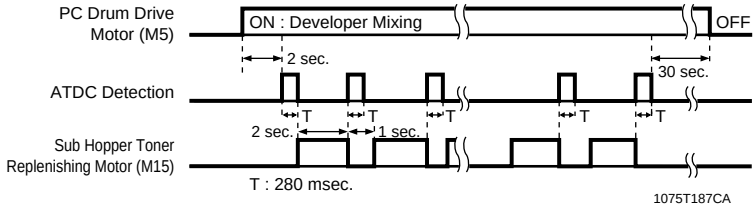
= Operation =


Toner Replenisher is selected.
PC Drum Drive Motor M5 is energized. = The Developing Unit is energized to mix the developer.
ATDC Sensor UN8 takes readings of the T/C every 5 msec. for 280 msec. and the CPU compares them with the T/C Control Level.
If the readings are lower than the setting
① Sub Hopper Toner Replenishing Motor M15 is energized for 2 sec.
② While the developer is being mixed for 1 sec., UN8 takes readings of the T/C every 5 msec. for 280 msec. and the CPU compares them with the T/C Control Level.
• When the T/C Control Level is reached after steps ① and ② have been repeated, toner replenishing is stopped. For 30 sec. thereafter, the developer is mixed before the sequence is completed.
• Steps ① and ② are repeated up to 30 times and, even if the T/C Control Level is not reached, the sequence is terminated after the mixing of developer for 30 sec.
If the readings are higher than the setting
M5 is deenergized and the sequence is terminated.

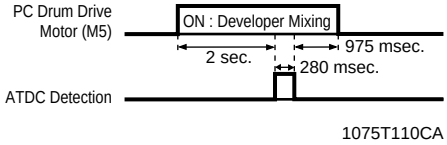
- If a copy cycle is started during the toner replenishing sequence, the sequence is interrupted and, after the copy cycle is completed, the developer mixing is carried out.
- The Toner Replenisher function is rejected while the copier is warming up or toner is empty in the Sub Hopper.

= Timing Chart =

<If Readings are Lower Than the T/C Control Level>



<If Readings are Higher Than the T/C Control Level>

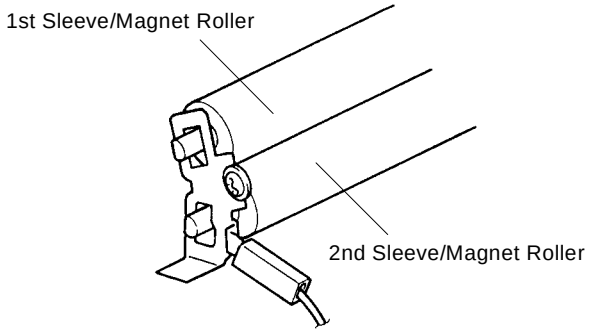


13-11. Developing Bias

- A negative voltage (V_B = developing bias voltage) is applied to the 1st and 2nd Sleeve/Magnet Rollers to prevent a foggy background on the copy. The amount of toner attracted onto the surface of the PC Drum depends on how much lower the PC Drum surface potential (V_l) is than V_B after exposure.
- A developing bias voltage of DC-270V is applied to the two Sleeve/Magnet Rollers by PC Drum Charge HV HV1.
- The developing bias is turned ON or OFF by the signal output from pin 75 of IC5A on Master Board PWB-A.

<Developing Bias ON Timing>
The developing bias output of HV1 turns ON at the same time when the PC Drum Drive Motor is energized (p. M-26).

<Developing Bias OFF Timing>
The developing bias output of HV1 turns OFF approx. 1550 msec. after Scanner Control Processor Board PWB-J has output a SCEND signal.



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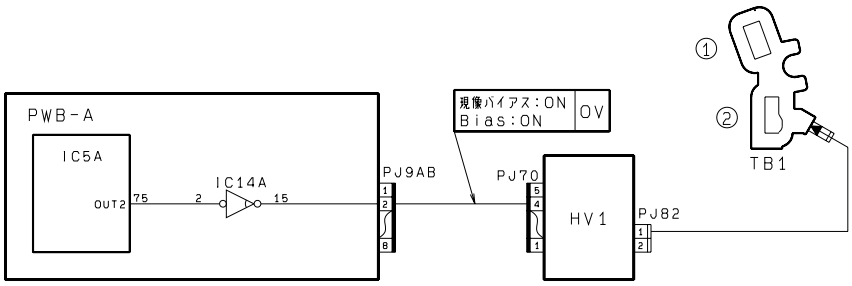

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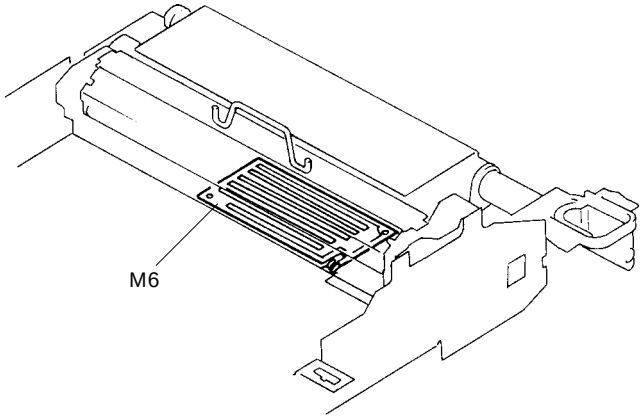
13-12. Developing Unit Dehumidifying Heater

- Variations in the environmental conditions (temperature and humidity) surrounding the copier could result in toner and carrier being insufficiently charged. Then, the amount of toner attracted onto the surface of the PC Drum decreases, making copy image density unstable. Developing Unit Dehumidifying Heater H6 installed on the underside of the Developing Unit ensures that toner and carrier mixed together in the Developing Unit are sufficiently charged under changing environmental conditions around the Developing Unit.

- H6 is turned ON only when the following two conditions are met:
  1. The power cord is plugged in.
  2. Power Switch S1 is in the OFF position.



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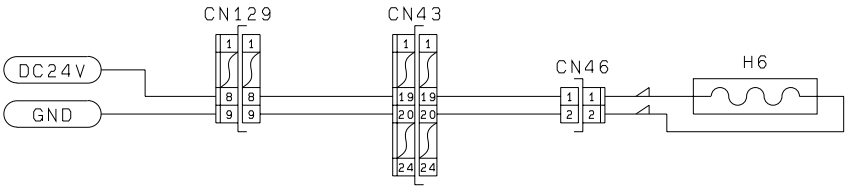

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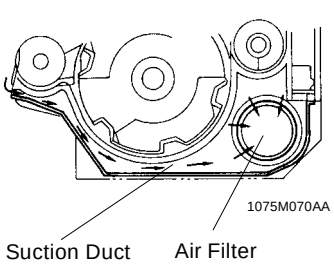
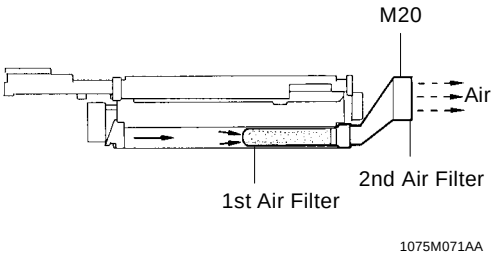
13-13. Toner Suction Fan Motor

- This copier is provided with a Suction Duct under the 2nd Sleeve/Magnet Roller. Toner particles from the Developing Unit are drawn in through the Suction Duct so that they will not fall over the Pre-Image Transfer Guide Plate and Image Transfer/Paper Separator Coronas Unit.
- The toner particles are drawn through the Suction Duct and collected by the Air Filter as the air is drawn out of the copier by Toner Suction Fan Motor M20.
- M20 is energized and deenergized by the signal output from pin 49 of IC5A on Master Board PWB-A.

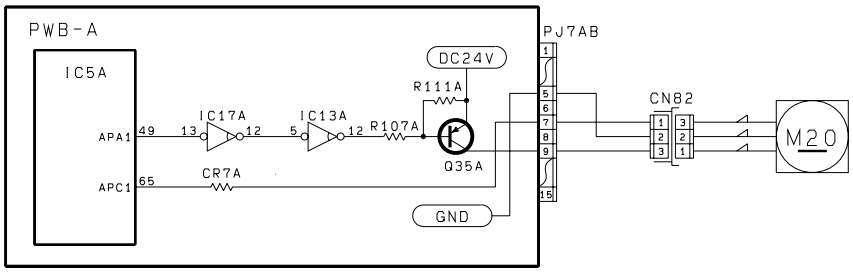
Toner Suction Path





<M20 Energization Timing>
M20 is energized at the same time when PC Drum Drive Motor M5 is energized (p. M-26).

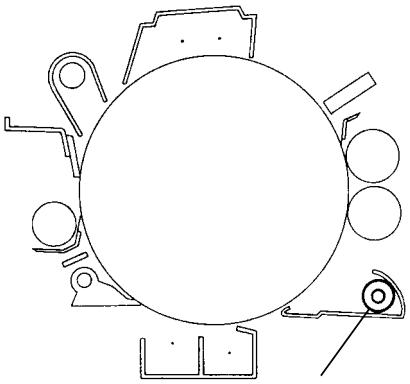
<M20 Deenergization Timing>
M20 is deenergized approx. 4,600 msec. after the trailing edge of the last copy has moved past Paper Exit Sensor PC36.



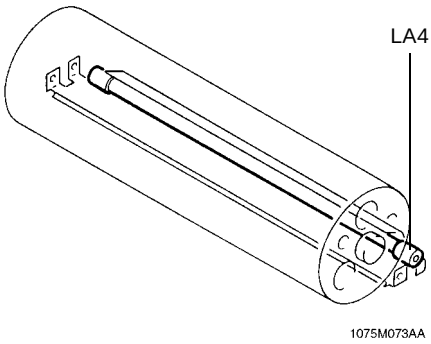
14 PRE-IMAGE TRANSFER ERASE LAMP

14-1. Pre-Image Transfer Erase Lamp

- This copier is equipped with Pre-Image Transfer Erase Lamp LA4 whose light strikes the surface of the PC Drum after development to improve image transfer and paper separation.
- A cold-cathode discharge tube is used for LA4. It emits light of short wavelength to the surface of the PC Drum.



1075M072AA



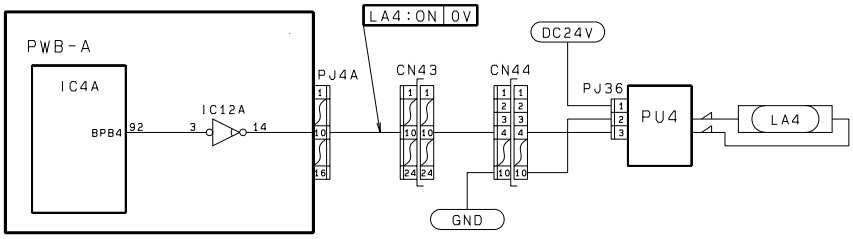
1075M073AA

14-2. Pre-Image Transfer Erase Lamp LA4 ON/OFF Control

LA4 is turned ON when Pre-Image Transfer Lamp Power Supply PU4 is turned ON by the signal output from pin 92 of IC4A on Master Board PWB-A.

<LA4 ON Timing>
PU4 turns ON to turn ON LA4 approx. 450 msec. after PC Drum Drive Motor M5 has been energized (p. M-26).

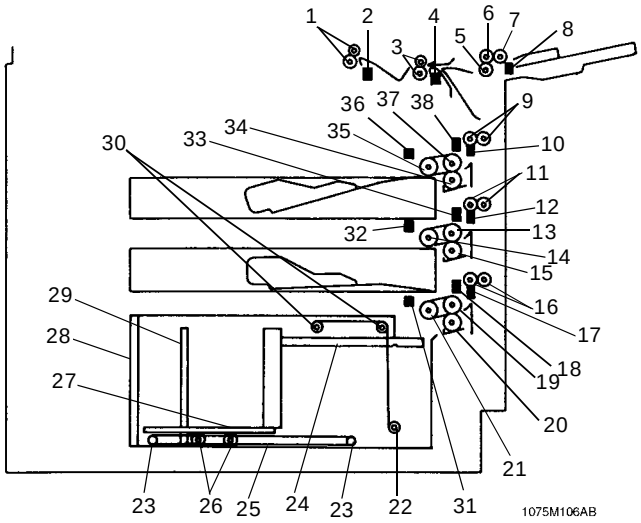
<LA4 OFF Timing>
PU4 turns OFF to turn OFF LA4 approx. 890 msec. after Scanner Control Processor Board PWB-J has output a SCEND signal.


PWB-A
IC4A
BPB4
92
IC12A
3
14
PJ4A
LA4:ON 0V
CN43
CN44
DC24V
PJ36
PU4
LA4
GND

1075C13MAA

15 PAPER TAKE-UP/FEED SECTION

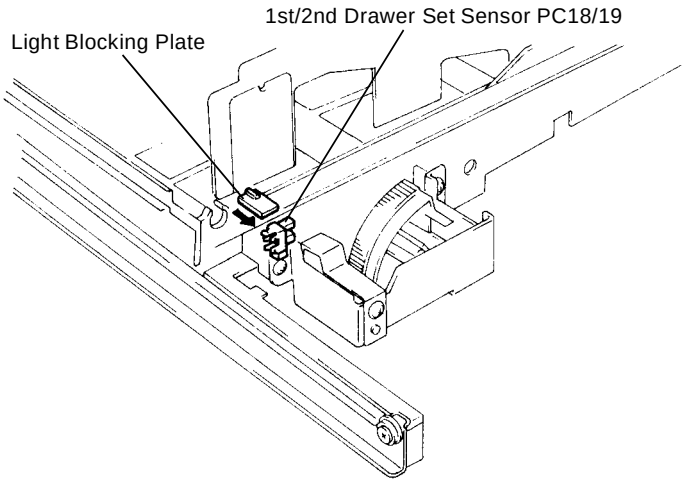
15-1. Construction



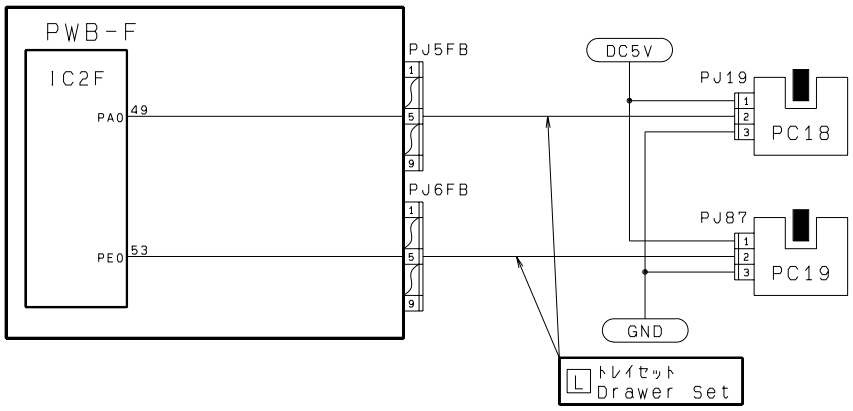
1. Synchronizing Roller
2. Paper Leading Edge Sensor PC27
3. Transport Rollers
4. Transport Roller Sensor PC26
5. Manual Bypass Separator Roll
6. Manual Bypass Feed Roll
7. Manual Bypass Take-Up Roll
8. Manual Feed Paper Empty Sensor PC28
9. Vertical Transport Roller 1
10. Vertical Transport Sensor 1 PC10
11. Vertical Transport Roller 2
12. Vertical Transport Sensor 2 PC11
13. 2nd Drawer Feed Roll
14. 2nd Drawer Paper Take-Up Roll
15. 2nd Drawer Separator Roll
16. Vertical Transport Roller 3
17. Vertical Transport Sensor 3 PC12
18. 3rd Drawer Paper Take-Up Sensor PC8
19. 3rd Drawer Feed Roll
20. 3rd Drawer Separator Roll
21. 3rd Drawer Paper Take-Up Roll
22. Wire Take-Up Pulley
23. Tension Pulley
24. Main Tray
25. Shifter Transport Timing Belt
26. Shifter Transport Roller
27. Shift Tray
28. Shifter
29. Shift Gate
30. Pulley
31. 3rd Drawer Paper Empty Sensor PC24 (at front of copier)
    3rd Drawer Lift-Up Sensor PC16 (in rear of copier)
32. 2nd Drawer Paper Empty Sensor PC23 (at front of copier)
    2nd Drawer Lift-Up Sensor PC15 (in rear of copier)
33. 2nd Drawer Paper Take-Up Sensor PC7
34. 1st Drawer Separator Roll
35. 1st Drawer Paper Take-Up Roll
36. 1st Drawer Paper Empty Sensor PC22 (at front of copier)
    1st Drawer Lift-Up Sensor PC14 (in rear of copier)
37. 1st Drawer Feed Roll
38. 1st Drawer Paper Take-Up Sensor PC6

15-2. Drawer-in-Position Detection

- When the 1st/2nd Drawer is slid into the copier, the light blocking plate in the rear of the drawer blocks 1st/2nd Drawer Set Sensor PC18/19 (L). The copier then knows that the drawer has been slid into position.



1075M107AA



1075C54MCA

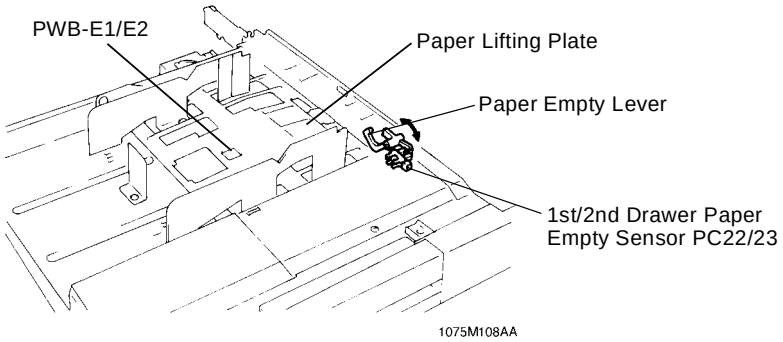
15-3. Paper Empty Detection

(1) Metric Areas

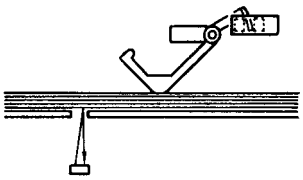
- A paper empty detection in the 1st and 2nd Drawers is detected by 1st Drawer Paper Empty Sensor PC22 and 2nd Drawer Paper Empty Sensor PC23, respectively.

(2) Inch Areas

- A paper empty detection in the 1st and 2nd Drawers is detected by 1st Drawer Paper Empty Sensor PC22 and 2nd Drawer Paper Empty Sensor PC23, and 1st Drawer Paper Empty Board PWB-E1 and 2nd Drawer Paper Empty Board PWB-E2, respectively.
- PC22/23 detects a paper-empty condition at the time of the paper take-up. The copier considers that there is no paper loaded if the sensor is unblocked (H).
- PWB-E1/E2 detects a paper-empty condition when the drawer is slid into the copier. The copier considers that there is no paper loaded if the board is unblocked (H).



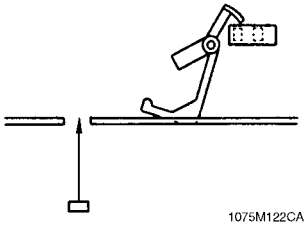
PC22/23 (blocked)



Paper Present

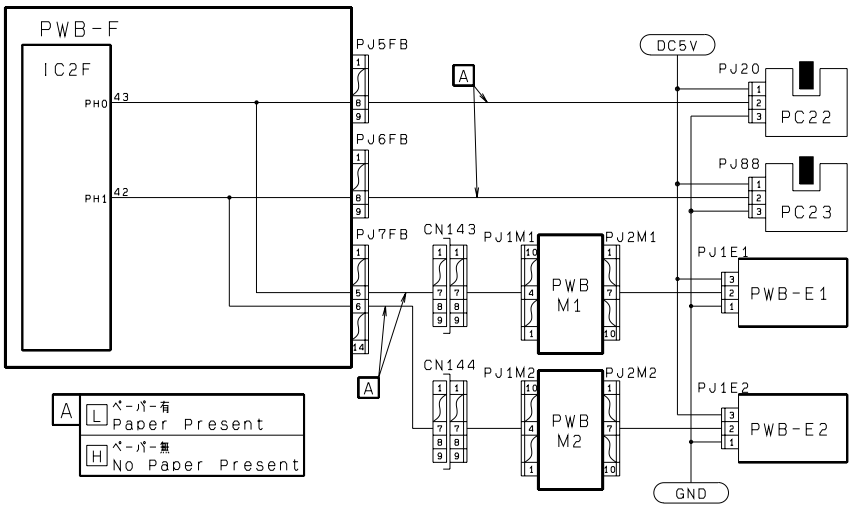
The paper stack raises the Paper Empty Lever which blocks (L) PC22/23.

PC22/23 (unblocked)



Paper Not Present

The Paper Empty Lever drops into the cutout in the Paper Lifting Plate and the light blocking plate of the empty lever clears PC22/23 (H).

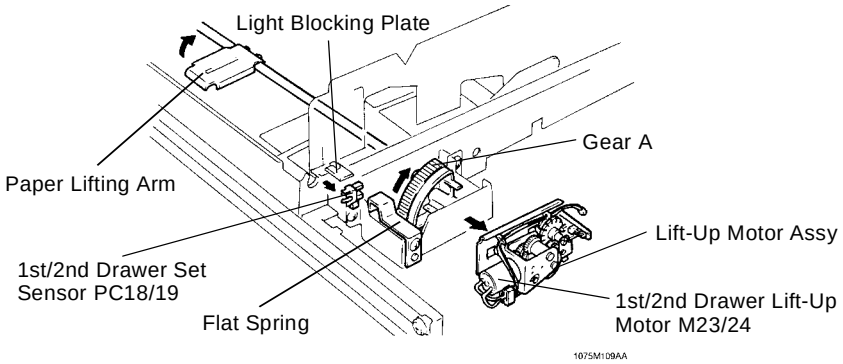

PWB-F
IC2F
PH0
43
PH1
42
PJ5FB
PJ6FB
PJ7FB
CN143
CN144
PJ1M1
PJ2M1
PJ1M2
PJ2M2
PWB M1
PWB M2
A
DC5V
GND
PJ20
PC22
PJ88
PC23
PJ1E1
PWB-E1
PJ1E2
PWB-E2
A
L ペーパー有 Paper Present
H ペーパー無 No Paper Present

1075C55MCA

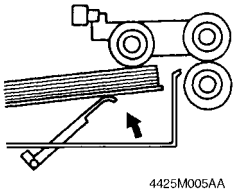
15-4. Paper Lifting/Lowering Mechanism/Control

(1) Metric Areas

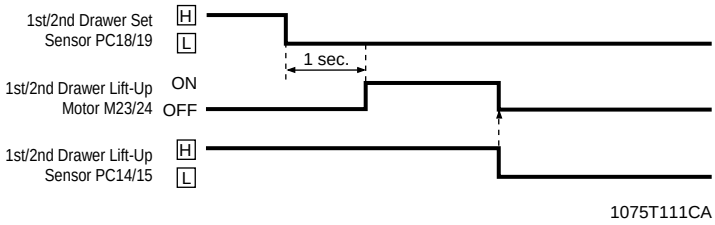
- When the drawer is slid into the copier, the flat spring at the rear of the drawer raises the Lift-Up Motor Assy and, as a result, Gear A on the Paper Lifting Arm shaft meshes with the Lift-Up Motor Assy gear.
- At this time, 1st/2nd Drawer Set Sensor PC18/19 is blocked (L) and, 1 sec. thereafter, 1st/2nd Drawer Lift-Up Motor M23/24 is energized.
- When M23/24 is energized, it turns the Paper Lifting Arm, thus raising the paper stack so it is pressed against the Paper Take-Up Roll.



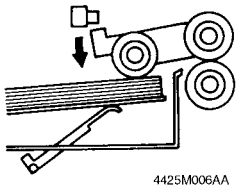
When Drawer is Slid in



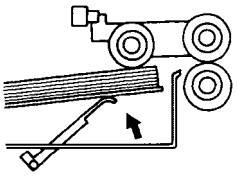
PC18/19 is blocked (L).
↓ 1 sec.
M23/24 is energized causing the paper stack to be raised. (Paper lifting is started.)
↓
The paper causes the light blocking plate of the Paper Take-Up Roll Assy to block 1st/2nd Drawer Lift-Up Sensor PC14/15 (L).
↓
M23/24 is deenergized. (Paper lifting is completed.)



During Copy Cycle



4425M006AA



4425M005AA

Paper is consumed as copies are made.

↓

As the Paper Take-Up Roll lowers, 1st/2nd Drawer Lift-Up Sensor PC14/15 is unblocked (H).

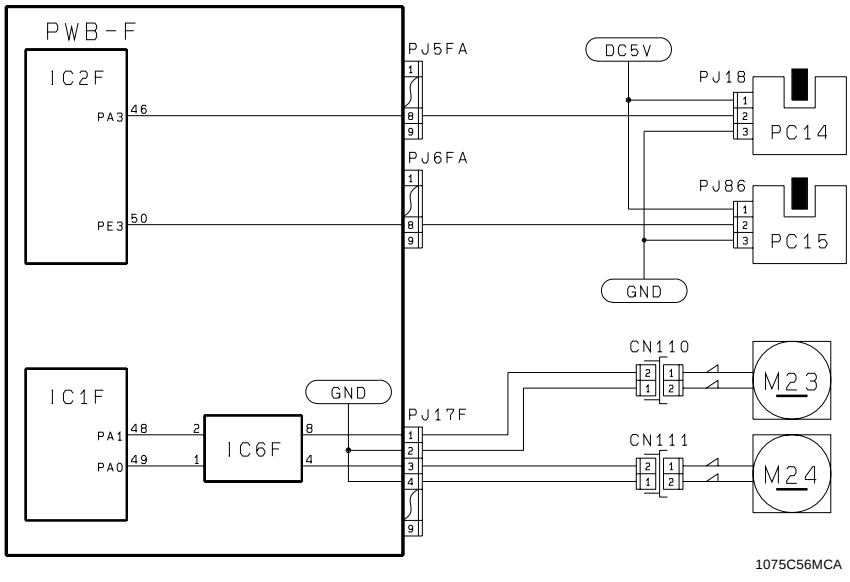
↓

1st/2nd Drawer Lift-Up Motor M23/24 is energized to raise the paper stack, thus blocking PC14/15 (L).

↓

M23/24 is deenergized.

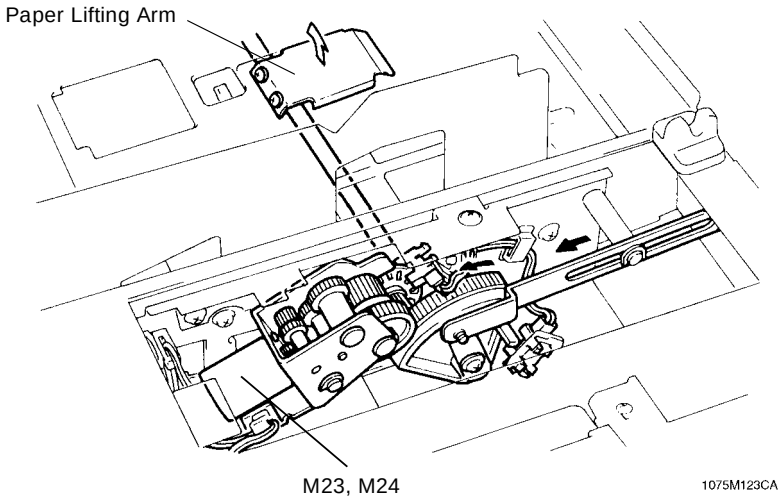
Note: Repeating these operations keeps constant the pressure between the Paper Take-Up Roll and paper regardless of the amount of paper still available for use.



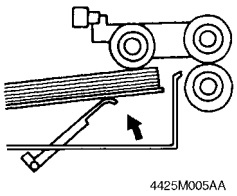
(2) Inch Areas

- When the drawer is slid into the copier and, if 1st/2nd Drawer Paper Empty Sensor PC22/23 and 1st/2nd Drawer Paper Empty Board PWB-E1/E2 are blocked (L), any of the following operations will energize 1st/2nd Drawer Lift-Up Motor M23/24 to turn forward, thus raising the paper stack.

Press 1st/2nd Drawer Paper Descent Key UN10/11.	Load originals on the Duplexing Document Feeder.
Turn ON Power Switch S1.	Place a paper stack on the Multi Bypass Table.
Open and close a door.	Slide the Sorter away from, and back to, the copier.
Raise and lower the Duplexing Document Feeder.	Press any key on the control panel.



Paper Stack Lifting



M23/24 is energized causing the paper stack to be raised. (Paper lifting is started.)

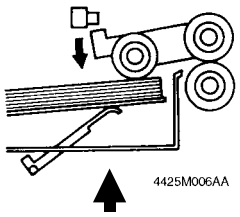
↓

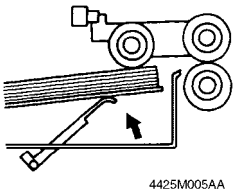
The paper causes the light blocking plate of the Paper Take-Up Roll Assy to block 1st/2nd Drawer Lift-Up Sensor PC14/15 (L).

↓

M23/24 is deenergized. (Paper lifting is completed.)

During Copy Cycle





Paper is consumed as copies are made.

↓

As the Paper Take-Up Roll lowers, 1st/2nd Drawer Lift-Up Sensor PC14/15 is unblocked (H).

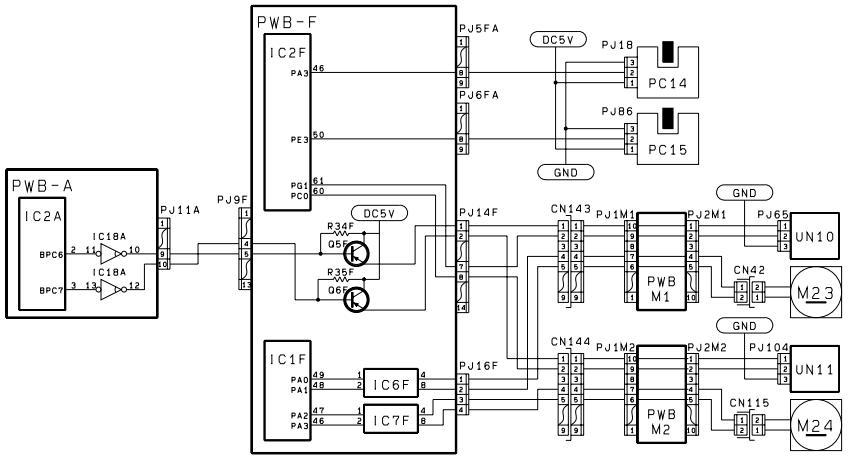
↓

M23/24 is energized to raise the paper stack, thus blocking PC14/15 (L).

↓

M23/24 is deenergized.

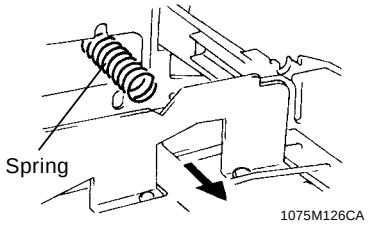
Note: Repeating these operations keeps constant the pressure between the Paper Take-Up Roll and paper regardless of the amount of paper still available for use.



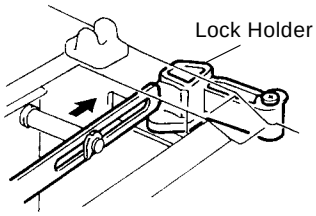
1075C57MCA

15-5. Paper Stack Lowering/Drawer Locking Mechanism/Control (Inch Areas)

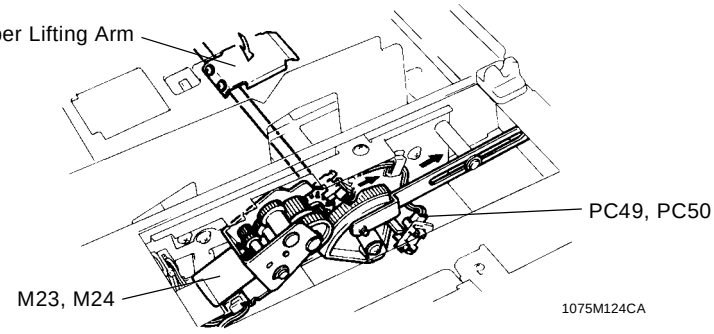
- When the Paper Descent Key (UN10/11) is pressed or the drawer runs out of paper during a copy cycle, the Lift-Up Motor (M23/24) is energized to turn backward to lower the Paper Lifting Plate.
- The Paper Lifting Plate is at its lower limit position when the segment gear mounted on the same shaft as the Paper Lifting Arm blocks 1st/2nd Drawer Lower Limit Position Sensor PC49/50 ([L]).
- When UN10/11 is pressed, M23/24 continues turning backward even after PC49/50 has been blocked and is deenergized when PC49/50 is unblocked ([H]), the blocking plate passing through the sensor. This unlocks the drawer and the drawer is pushed approx. 70 mm out to the front by the spring placed in the rear of the copier.
- After the drawer has been unlocked, M23/24 starts turning forward and is deenergized when PC49/50 is blocked ([L]).
- The drawer is locked in position by the lock holder inside the copier when it is slid all the way into the copier.



1075M126CA

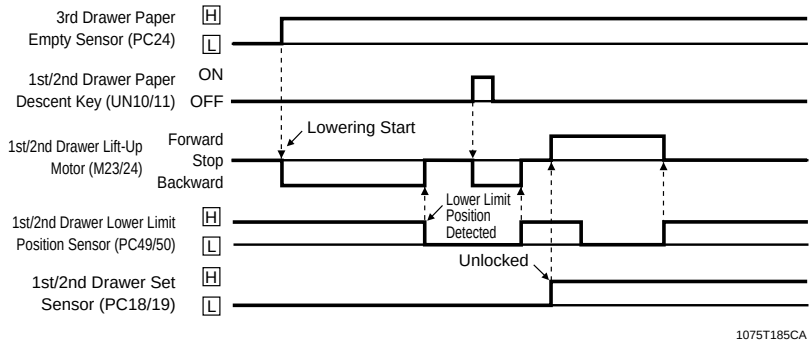


1075M125CA

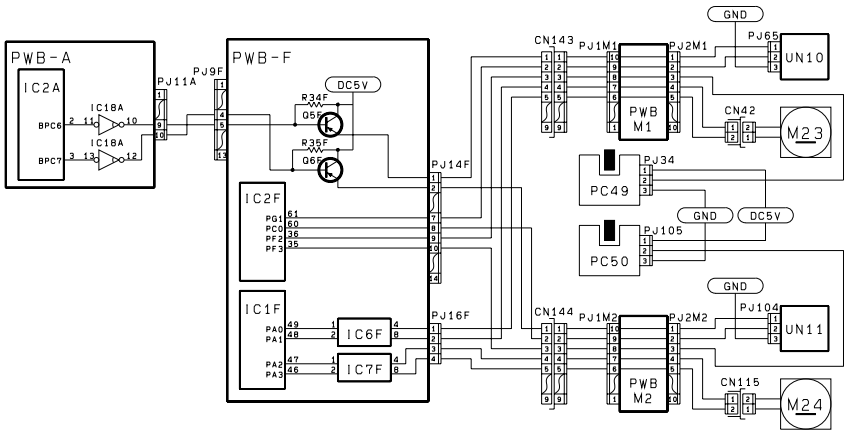


1075M124CA

◆ Timing Chart



1075T185CA


PWB-A
IC2A
IC18A
BPC6
IC18A
BPC7
PJ11A
PJ9F
PWB-F
DC5V
R34F
Q5F
R35F
Q6F
IC2F
PG1
PC0
PF2
PF3
IC1F
PA0
PA1
IC6F
PA2
PA3
IC7F
PJ14F
PJ16F
CN143
PJ1M1
PJ2M1
PWB M1
GND
PJ65
UN10
CN42
M23
PJ34
PC49
GND
DC5V
PJ105
PC50
CN144
PJ1M2
PJ2M2
PWB M2
GND
PJ104
UN11
CN115
M24

1075C58MCA

15-6. Paper Level Detection

- The amount of paper still available for use, or the paper level, of the 1st and 2nd Drawer is detected by 1st/2nd Drawer Lift-Up Motor Pulse Sensor PC56/57 and a pulse disk.
- The pulse disk is mounted on the shaft of the intermediary gear that transmits drive from the Lift-Up Motor (M23/24). The speed of M23/24 is known by counting the number of pulses using PC56/57.

When the Drawer is Slid in

Counting of the number of pulses is started when M23/24 is energized (to turn forward) and continues until PC56/57 is blocked (L). The total number of pulses is translated into the amount of paper which is shown on the Touch Panel as a graphic marker in units of 50 sheets of paper.

During Copy Cycle

As the paper is consumed and the top level of the paper stack lowers, M23/24 is energized (to turn forward) to raise the paper stack. During this time, PC56/57 detects pulses and that pulse count is accumulated. When the count reaches 50 sheets of paper, one segment of the paper level indicator on the Touch Panel goes out.

*Paper Level Indicator

- 1 to 50 sheets

1134M058AA
- 50 to 200 sheets

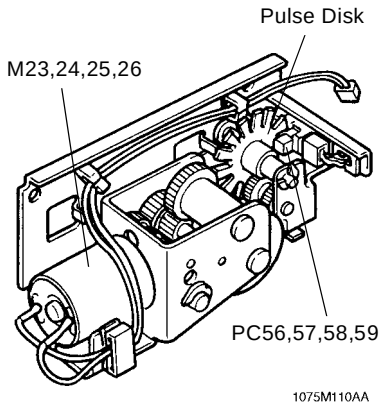
1134M059AA
- 200 to 350 sheets

1134M060AA
- 350 to 500 sheets

1134M061AA
- 500 sheets up

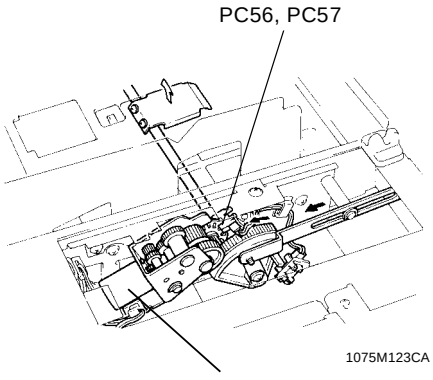
1134M062AA

(Metric Area)

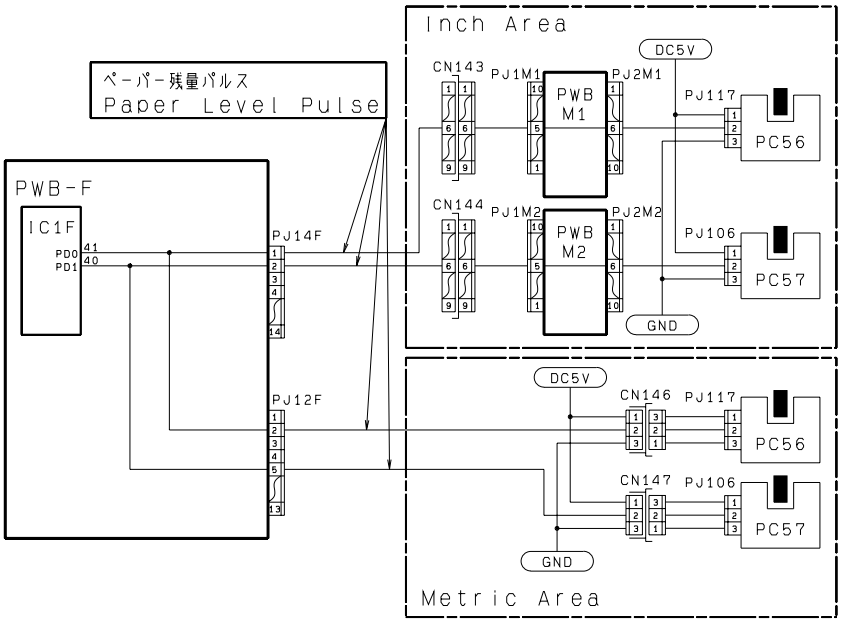


1075M110AA

(Inch Area)



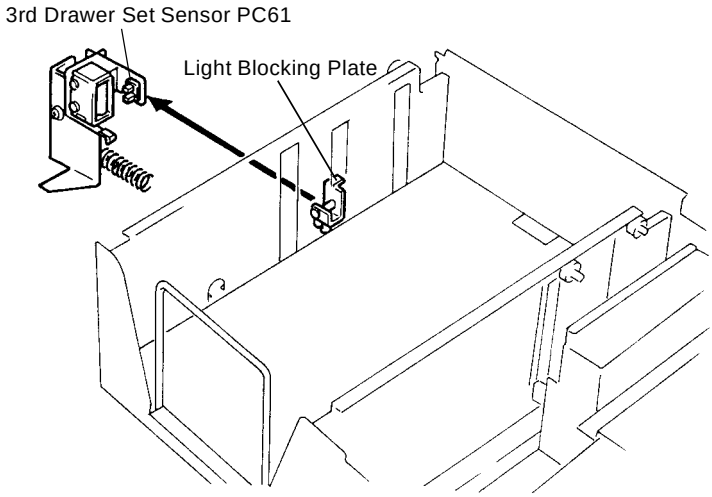
1075M123CA


Inch Area
DC5V
ペーパー残量パルス
Paper Level Pulse
CN143
PJ1M1
PWB
M1
PJ2M1
PJ117
PC56
PWB-F
IC1F
PD0
PD1
41
40
PJ14F
CN144
PJ1M2
PWB
M2
PJ2M2
PJ106
PC57
GND
PJ12F
DC5V
CN146
PJ117
PC56
CN147
PJ106
PC57
GND
Metric Area

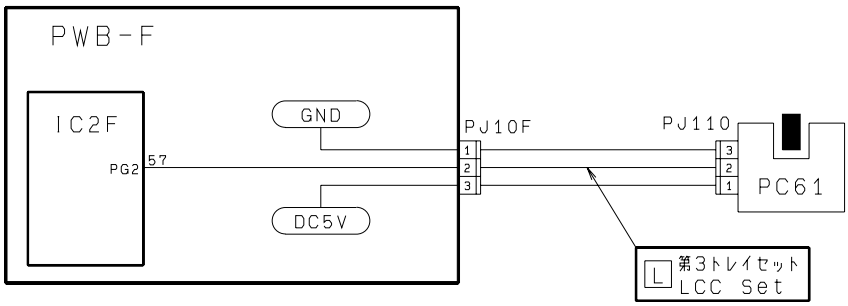
1075C59MCA

15-7. 3rd-Drawer-in-Position Detection

- When the 3rd Drawer is slid into the copier, the light blocking plate in the rear of the drawer blocks 3rd Drawer Set Sensor PC61 (L) and the copier determines that the 3rd Drawer has been slid into it.



1075M111AA



1075C39MAA

15-8. 3rd Drawer Paper Empty Detection

Main Tray

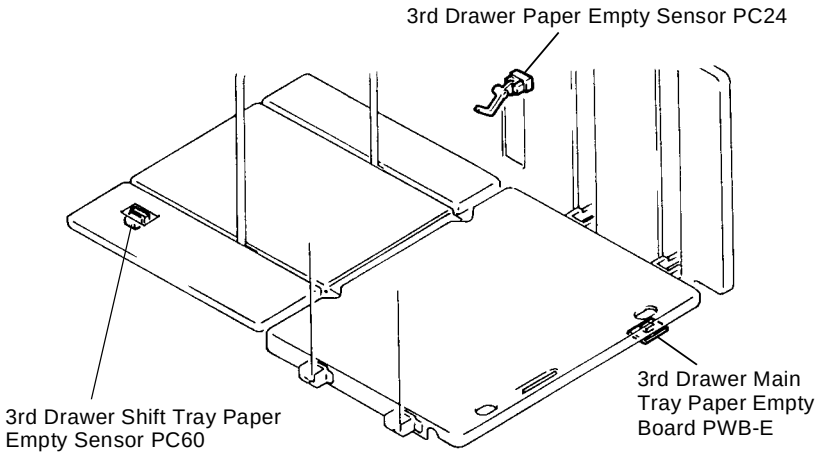
- A paper-empty condition of the Main Tray is detected by 3rd Drawer Main Tray Paper Empty Board PWB-E and 3rd Drawer Paper Empty Sensor PC24.
- PWB-E detects a paper-empty condition at a timing when the 3rd Drawer is slid into the copier (i.e., when the Main Tray is at its lower limit position). The copier notes a paper-empty condition if PWB-E is unblocked (H).
- PC24 works when paper is taken up from the Main Tray (i.e., when the Main Tray is at its upper limit position). The copier considers that the Main Tray has run out of paper if PC24 is unblocked (H).

Shift Tray

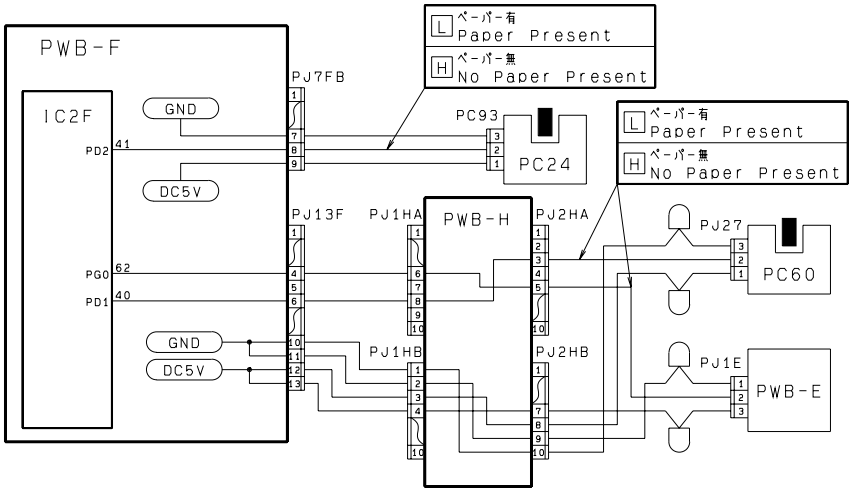
- A paper-empty condition of the Shift Tray is detected by 3rd Drawer Shift Tray Paper Empty Sensor PC60.
- The copier considers that the Shift Tray has run out of paper when PC60 is unblocked (H).

<Copying Operation at Main/Shift Tray Paper Empty>

* When a paper-empty condition is detected in the Main Tray during a multi copy cycle, the paper stack on the Shift Tray, if available, is transferred to the Main Tray to continue the copy cycle. If paper is not loaded on the Shift Tray but paper of the same size and direction is loaded in any other paper source, that paper source is automatically selected for an uninterrupted copy cycle.
* When a paper-empty condition is detected in both the Main and Shift Tray during a multi copy cycle, and if no paper of the same size and direction is available, a paper-empty message is given on the Touch Panel and the copy cycle is terminated.


3rd Drawer Paper Empty Sensor PC24
3rd Drawer Shift Tray Paper Empty Sensor PC60
3rd Drawer Main Tray Paper Empty Board PWB-E

4425M120AA

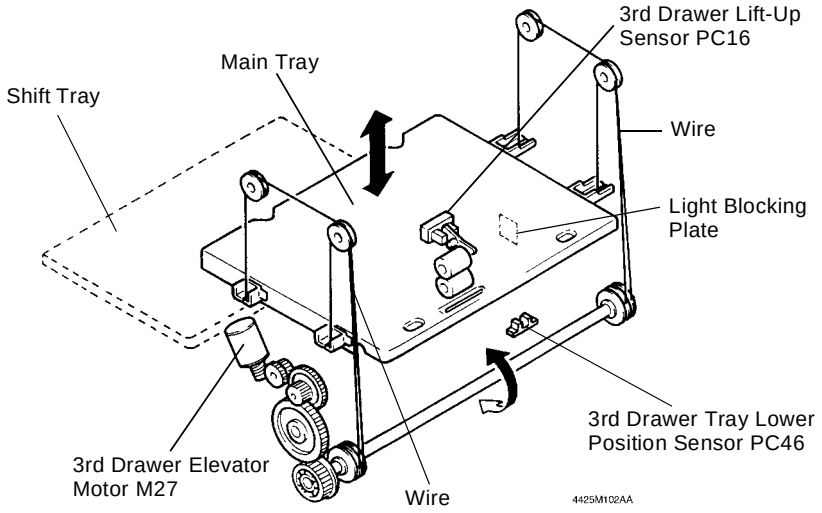

PWB-F
IC2F
GND
PD2
41
DC5V
PG0
62
PD1
40
GND
DC5V
PJ7FB
PJ13F
PJ1HA
PJ1HB
PWB-H
PJ2HA
PJ2HB
PC93
PC24
PJ27
PC60
PJ1E
PWB-E
L ベーパー有 Paper Present
H ベーパー無 No Paper Present
L ベーパー有 Paper Present
H ベーパー無 No Paper Present

1075C40MAA

15-9. Main Tray Paper Stack Lifting/Lowering Mechanism/Control

◆ Main Tray Paper Stack Lifting/Lowering Mechanism

- The Main Tray is raised and lowered by 3rd Drawer Elevator Motor M27. When M27 turns forward or backward, the wires at the front and rear are wound around, or fed off, the pulleys to raise or lower the Main Tray.
  - Detection of Main Tray at its upper limit position : When the Main Tray is raised, the paper stack on the tray presses upward the Paper Take-Up Roll Assy which blocks 3rd Drawer Lift-Up Sensor PC16 (L). The low signal indicates that the Main Tray has reached its upper limit position.
  - Detection of Main Tray at its lower limit position : As the Main Tray is lowered, the light blocking plate on the bottom of the tray blocks 3rd Drawer Tray Lower Position Sensor PC46 (L). The low signal indicates that the Main Tray has reached its lower limit position.

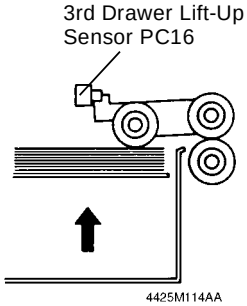


◆ 3rd Drawer Elevator Motor M27 Control

- M27, a DC motor, is energized to turn forward or backward and deenergized by the M27 Control signals fed from Master Board PWB-A and output through pins 59 and 60 of IC1F on Drawer S/P Board PWB-F. Details are as follows.

M27	Main Tray	IC1F	
		59	60
Energized (forward)	Up	L	H
Energized (backward)	Down	H	L
Deenergized	Stop	L	L

When Drawer is Slid in



3rd Drawer Set Sensor PC61 is blocked (L).

↓ 1 sec.

3rd Drawer Paper Descent Key UN12 is pressed. (For inch areas)

↓

M27 is energized to raise the Main Tray.

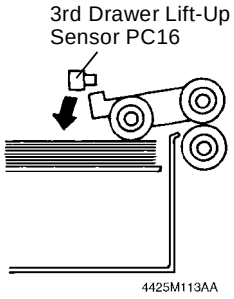
↓

The paper stack causes the light blocking plate of the Paper Take-Up Roll Assy to block PC16 (L).

↓ 15 msec.

M27 is deenergized.

During Copy Cycle



Paper is consumed as copies are made.

↓

The Paper Take-Up Roll gradually lowers, unblocking PC16 (H).

↓

M27 is energized to raise the Main Tray, causing the paper stack to block PC16 (L).

* Repeating these operations keeps constant the pressure between the paper stack and Paper Take-Up Roll regardless of the amount of paper still available for use.

◆ **Main Tray Up/Down Motion Conditions**

• The Main Tray is Raised When:

(1) The 3rd Drawer is slid into the copier with its Main Tray loaded with paper. (For metric areas)

(2) Any of the following operations is performed with the 3rd Drawer slid into the copier and with the Main Tray loaded with paper. (For inch areas)

Press 3rd Drawer Paper Descent Key UN12.	Load originals on the Duplexing Document Feeder.
Turn ON Power Switch S1.	Place a paper stack on the Multi Bypass Table.
Open and close a door.	Slide the Sorter away from, and back to, the copier.
Raise and lower the Duplexing Document Feeder.	Press any key on the control panel.

(3) The paper stack on the Shift Tray is transferred to the Main Tray.

(4) 3rd Drawer Lift-Up Sensor PC16 is unblocked (H) during a paper take-up sequence with the Main Tray loaded with paper (during top level correction).

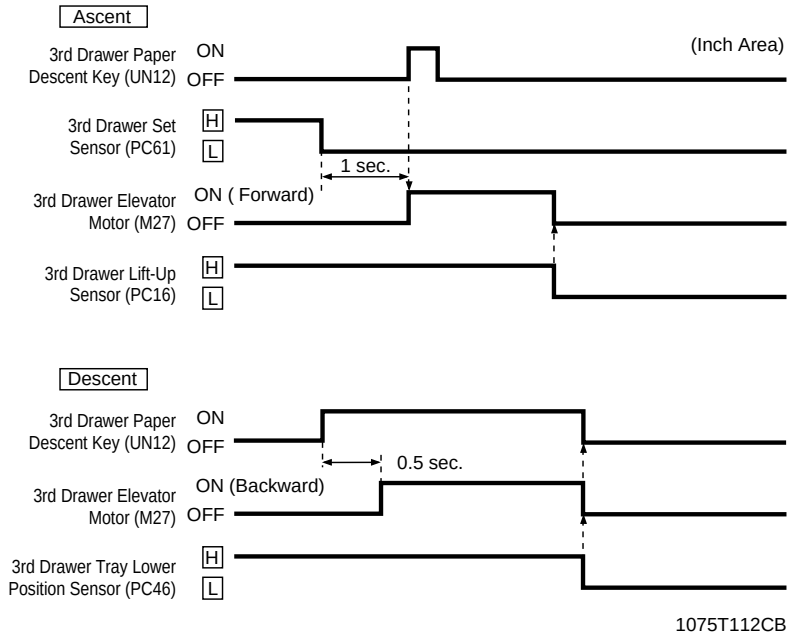
• The Main Tray is Lowered When:
(1) 3rd Drawer Paper Empty Sensor PC24 is unblocked (H) during a paper take-up sequence.
(2) 3rd Drawer Paper Descent Key UN12 is pressed.
(3) Power Switch S1 is turned ON when the Main Tray is located at a position other than its upper and lower limits.

◆ **Main Tray Stop Conditions**

• While the Main Tray is going up:
(1) 3rd Drawer Lift-Up Sensor PC16 is blocked (L).
(2) PC16 is blocked (L) during top level correction.

• While the Main Tray is going down:
(1) 3rd Drawer Tray Lower Position Sensor PC46 is blocked (L).

◆ **Timing Chart**



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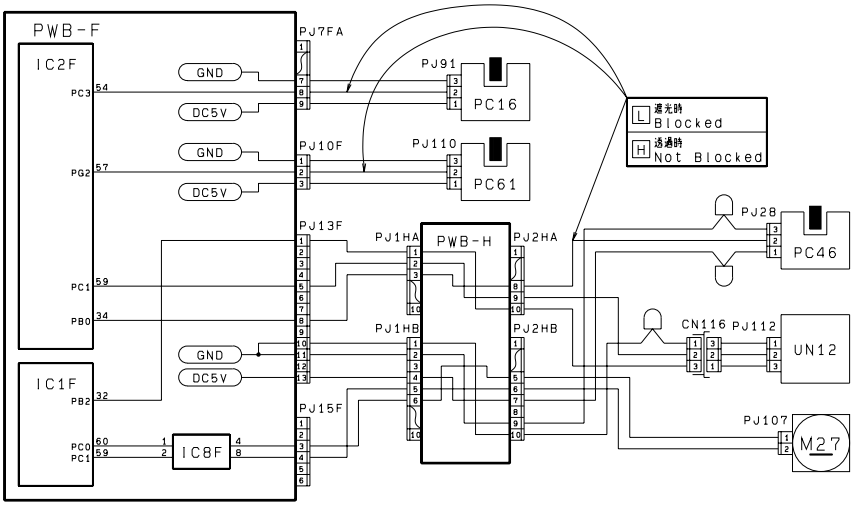

PWB-F
IC2F
PC3
54
PG2
57
PC1
59
PB0
34
IC1F
PB2
32
PC0
60
PC1
59
GND
DC5V
GND
DC5V
GND
DC5V
IC8F
PJ7FA
PJ10F
PJ13F
PJ15F
PJ91
PC16
PJ110
PC61
PJ1HA
PJ1HB
PWB-H
PJ2HA
PJ2HB
遮光時
Blocked
透過時
Not Blocked
PJ28
PC46
CN116
PJ112
UN12
PJ107
M27

1075C41MAA

15-10. 3rd Drawer Paper Level Detecting Mechanism

- The amount of paper still available for use, or the paper level, of the Main Tray is detected using 3rd Drawer Elevator Motor Pulse Sensor PC44 and a pulse disk which detect the speed of 3rd Drawer Elevator Motor M27.
- The pulse disk is mounted on the shaft of the intermediary gear that transmits drive from M27. The speed of M27 is known by counting the number of pulses using PC44.

When 3rd Drawer is Slid in

Counting of the number of pulses is started when M27 is energized (to turn forward) and continues until PC16 is blocked (L). The total number of pulses is translated into the amount of paper which is shown on the Touch Panel as a graphic marker in units of 50 sheets of paper.

*Paper Level Indicator

- 1 to 50 sheets

1134M058AA
- 50 to 200 sheets

1134M059AA
- 200 to 350 sheets

1134M060AA
- 350 to 500 sheets

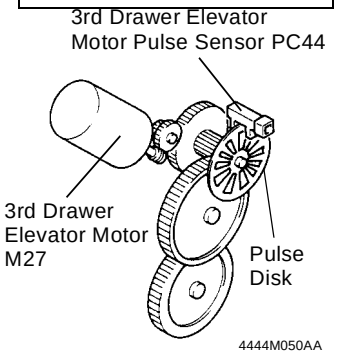
1134M061AA
- 500 sheets up

1134M062AA

During Copy Cycle

As the paper is consumed and the top level of the paper stack lowers, M27 is energized (to turn forward) to raise the paper stack. During this time, PC44 detects pulses and that pulse count is accumulated. When the count reaches 50 sheets of paper, one segment of the paper level indicator on the Touch Panel goes out.

NOTE : If there is paper on the Shift Tray, the copier detects that 500 sheets or more of paper are left in the 3rd Drawer as long as paper is left on the Main Tray.



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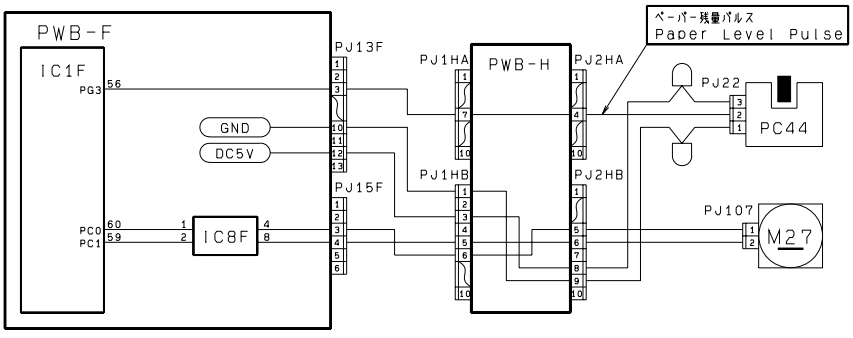


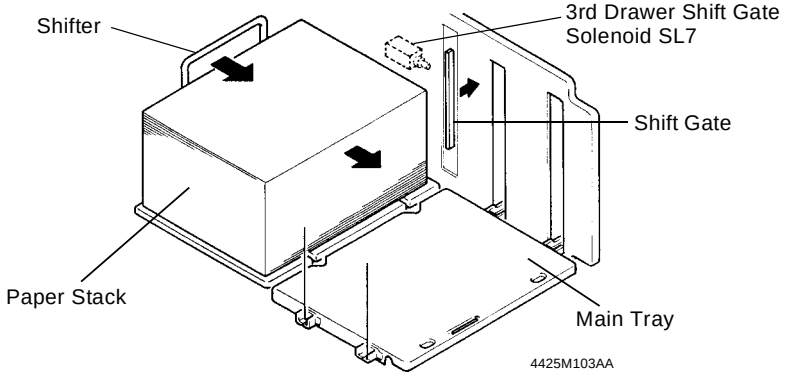
1075C42MAA

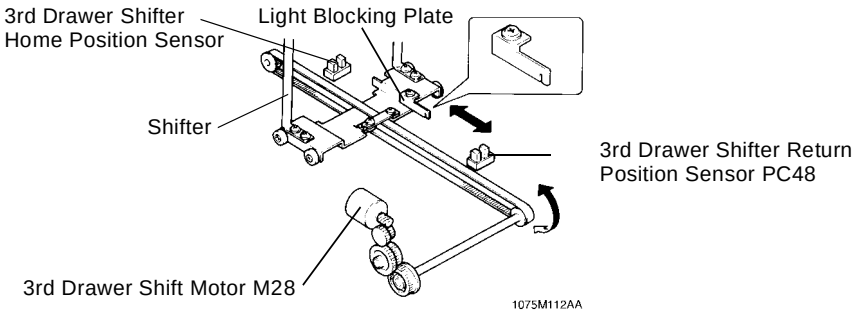
15-11. Shifter Drive Mechanism/Control

- The Shifter is driven by 3rd Drawer Shift Motor M28 via a belt. As M28 is energized, the Shifter transfers the paper stack on the Shift Tray to the Main Tray.
- The Shifter is at its home position when 3rd Drawer Shifter Home Position Sensor PC47 is blocked (L). This is before the Shifter moves the paper stack to the Main Tray.
- The return position of the Shifter is where the light blocking plate (*1) on the bottom of the Shifter blocks (L), unblocks (H), and then blocks (L) again 3rd Drawer Shifter Return Position Sensor PC48. This is where the Shifter has just transferred the paper stack onto the Main Tray.

(*1): The light blocking plate is shaped as shown below (having a cutout in it). As it moves past PC48, it produces the sensor outputs as shown.

- The Shift Gate serves as a wall to block the paper on the Shift Tray from moving toward the Main Tray.
- It is moved out to the front and retracted back to the rear as 3rd Drawer Shift Gate Solenoid SL7 is deenergized and energized.
- When SL7 is energized, it retracts the Shift Gate, allowing the paper stack on the Shift Tray to be moved onto the Main Tray.





◆ 3rd Drawer Shift Motor M28 Control

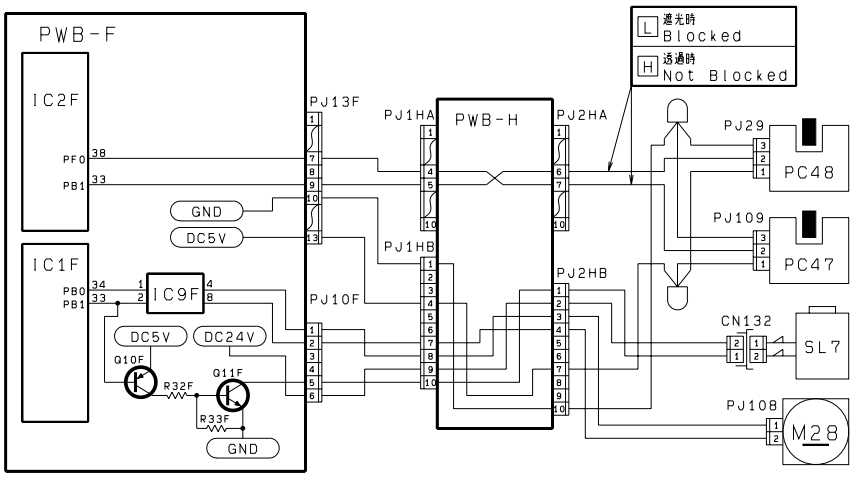
- M28, a DC motor, is energized to turn forward or backward and deenergized by the M28 Control signals fed from Master Board PWB-A and output through pins 33 and 34 of IC1F on Drawer S/P Board PWB-F.

M28	Shifter	IC1F	
		33	34
Energized (forward)	Transfer	L	H
Energized (backward)	Return	H	L
Deenergized	Stop	L	L

◆ 3rd Drawer Shift Gate Solenoid SL7 Control

- SL7 is energized and deenergized by the SL7 Control signal fed from PWB-A and output through pin 33 of IC1F on PWB-F.

SL7	Pin 33 of IC1F
Energized	L
Deenergized	H



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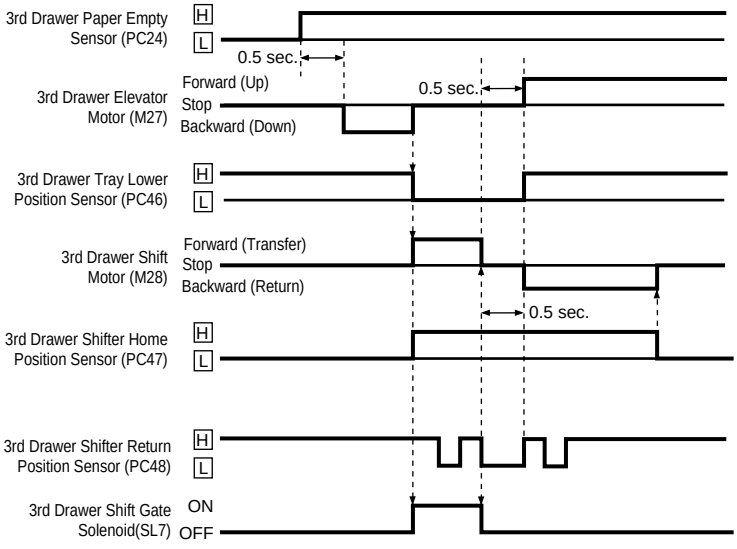
◆ Timing Chart



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15-12. 3rd Drawer Lock/Release

Lock

- When the 3rd Drawer is slid into the copier, the locking pawl in the rear of the copier is hooked onto the locking shaft in the rear of the 3rd Drawer.

Release

Press 3rd Drawer Paper Descent Key UN12.

↓

The Main Tray starts lowering and blocks 3rd Drawer Tray Lower Position Sensor PC46 (L).

↓ 0.5 sec.

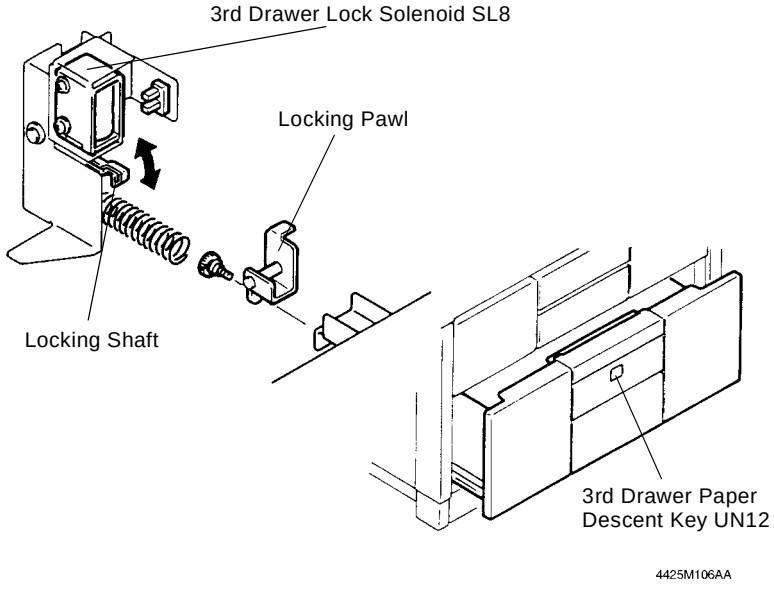
3rd Drawer Lock Solenoid SL8 is energized and remains so for 0.5 sec.

↓

The locking pawl in the rear of the copier is disengaged from the locking shaft in the rear of the 3rd Drawer.

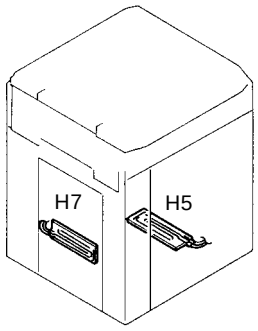
↓

The tension of the spring in the rear of the copier pushes the 3rd Drawer approx. 70 mm out to the front.



15-13. Paper Dehumidifying Heaters (Except Europe, U.S.A., and Canada)

- When the paper in the drawer grows damp, its electrical resistance decreases, which degrades image transfer efficiency. As a result, void areas and other image problems occur on the copy.
- Upper and Lower Paper Dehumidifying Heaters H7 and H5 are provided to prevent this problem.



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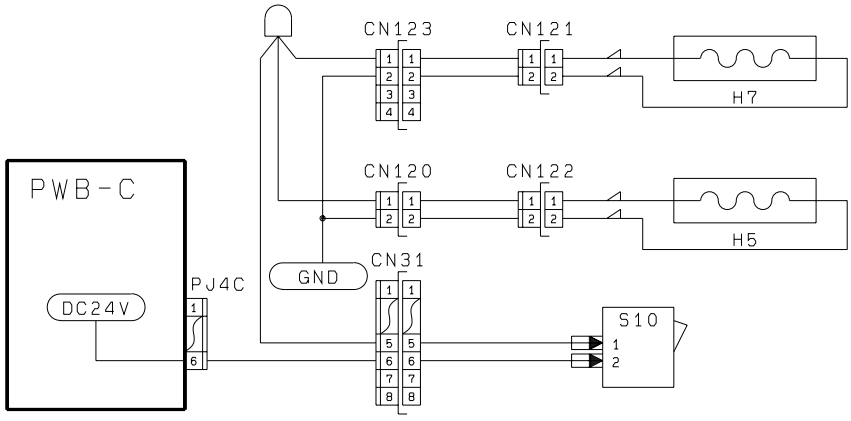
◆ **Upper/Lower Paper Dehumidifying Heater H7/5 ON/OFF Conditions**

- ON Conditions
  H7 and H5 are turned ON when Paper Dehumidifying Switch S10 is turned ON with the power cord plugged in.
- OFF Conditions
  When Power Switch S1 is turned ON, it cuts off DC24V to H7 and H5, turning them OFF.

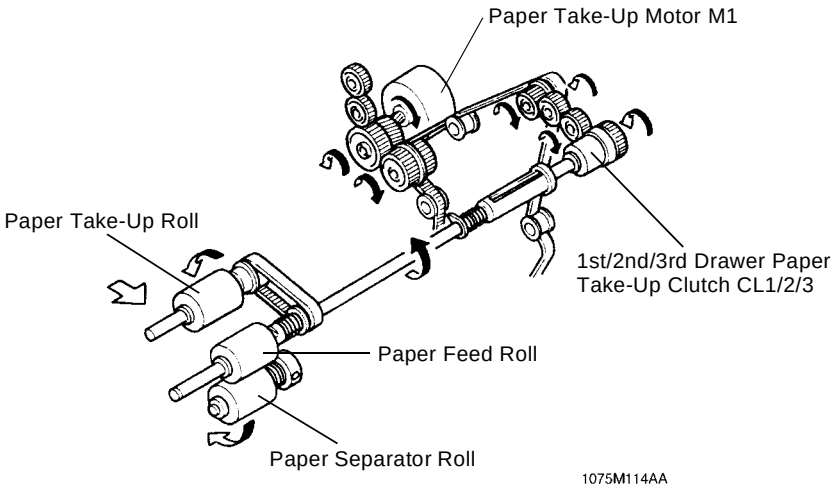


1075C44MAA

15-14. Drawer Paper Take-Up Mechanism/Control

<Paper Take-Up Mechanism>

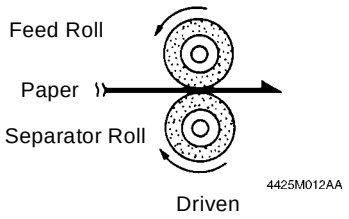
- Drive for the paper take-up sequence is transmitted from Paper Take-Up Motor M1 when 1st/2nd/3rd Drawer Paper Take-Up Clutch CL1/2/3 is energized.



<Paper Separating Mechanism>

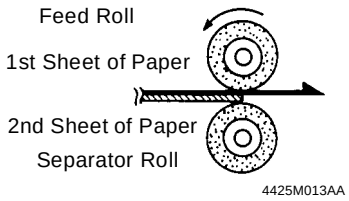
- The paper separating mechanism employs a torque limiter to ensure that only the top sheet of paper is fed in by separating the second sheet of paper from the top one.
- This is accomplished by the difference in friction coefficient between the Feed and Separator Rolls.

<Normal Feeding>



- When only one sheet of paper is taken up, the friction coefficient on the top side of the paper is equal to that on the underside. Driven by the Feed Roll, the paper drives the Separator Roll, allowing the paper to be fed onto the Vertical Transport Section.

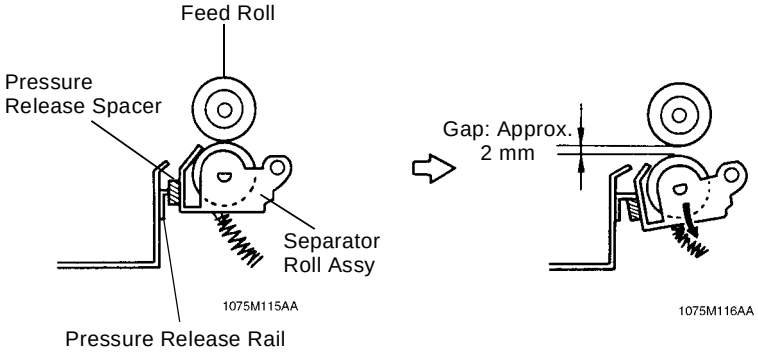
<Double Feeding>



- Since the friction coefficient between the second sheet of paper and the Separator Roll is greater than that between the first and second sheets of paper, the Separator Roll is not driven and holds the second sheet of paper. The Feed Roll thus feeds the first sheet of paper onto the Vertical Transport Section.

<Paper Pressure Release Mechanism> (Except 3rd Drawer)

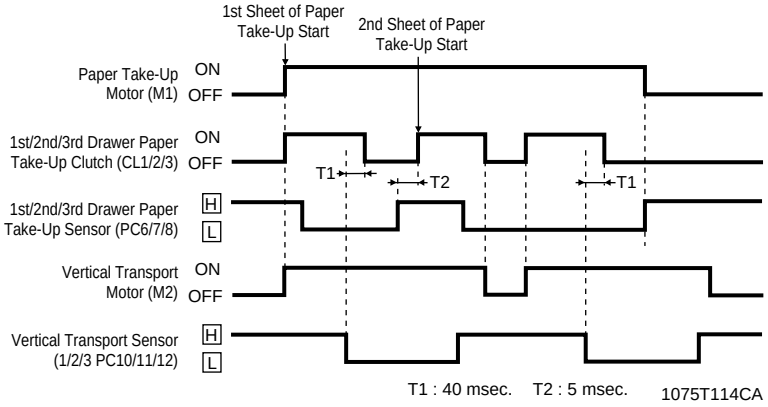
- If the drawer is pulled out when a sheet of paper is pinched between the Feed and Separator Rolls, that sheet of paper is left inside the copier and it becomes difficult to remove it.
- This copier is therefore provided with a mechanism that releases the Separator Roll from the Feed Roll when the drawer is slid out of the copier.
- The paper pressure release mechanism consists of the Pressure Release Spacer on the Separator Roll Assy and the Pressure Release Rail fitted to the upper part of the Drawer Rail. When the drawer is slid out, the Pressure Release Rail presses down the Pressure Release Spacer, which results in the Separator Roll being disengaged from the Feed Roll.

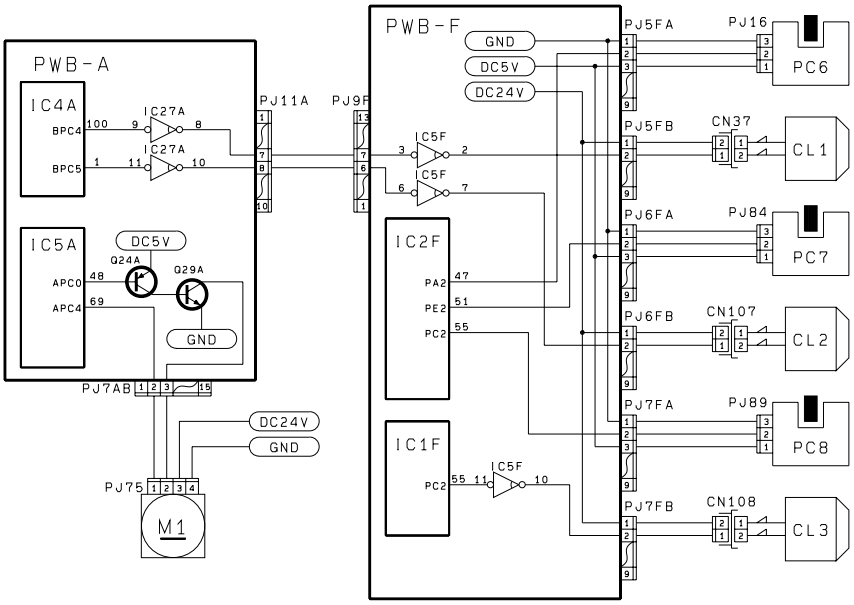


<Paper Take-Up Motor M1 Control>

- Paper Take-Up Motor M1 is a DC motor and controlled by the M1 Remote signal output from pin 48 of IC5A on Master Board PWB-A.

◆ Control Timing (Multi copy cycle for 2 copies)





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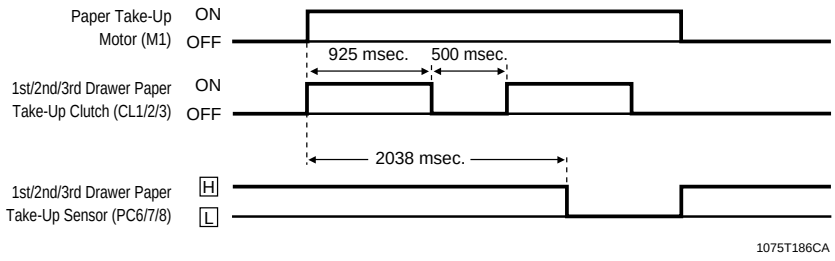
<Paper Take-Up Retry Control>

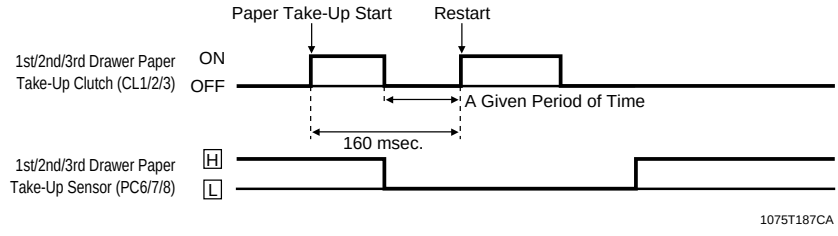
- To minimize the occurrence of paper misfeed due to a slippery Paper Take-Up Roll, the Paper Take-Up Clutch (CL1/2/3) is kept deenergized for 500 msec. before it is energized again, if a sheet of paper fails to reach the Paper Take-Up Sensor (PC6/7/8) even after the lapse of 925 msec. after the clutch has first been energized. (This is called the paper take-up retry function.)
- A paper misfeed results if the sheet of paper does not reach the Paper Take-Up Sensor even after two paper take-up sequences.
- Here is the control timing chart.



*1: The copier determines that there is a paper misfeed if the output from the Paper Take-Up Sensor does not go LOW even after the lapse of approx. 2,038 msec. after the paper take-up sequence, including the retry.

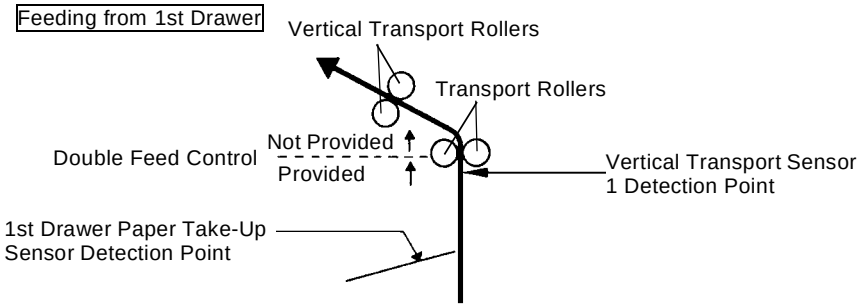
<Paper Take-Up Interval Control>

- The Paper Feed Roll and Separator Roll may sometimes fail to separate the subsequent sheet of paper properly and the leading edge of that paper may be ahead of the Feed and Separator Rolls inside the copier. If the Paper Take-Up Roll is started for the new paper take-up sequence in this condition, the distance between the preceding and the current sheet of paper will become shorter than normal, resulting in a misfeed.
- To maintain a given paper take-up interval, therefore, this copier provides the following control, thereby preventing a paper misfeed.
- It normally takes approx. 160 msec. or more for the paper to block the Paper Take-Up Sensor (PC6/7/8) (L) after the Paper Take-Up Clutch (CL1/2/3) has been energized. If this timing is less than 160 msec., the clutch is deenergized temporarily and, after a given period of time, it is energized again to provide a good interval between two paper take-ups. (This is called the paper take-up interval control.)



<Double Feed Control>

- Even if the Paper Take-Up Roll takes up two sheets of paper at one time, the double feed control uses the second sheet of paper for the next copy cycle without causing a paper misfeed. It eliminates a paper misfeed that would otherwise result when two sheets of paper are taken up at once.
- If the second sheet of paper is stationary blocking the Paper Take-Up Sensor (PC6/7/8) when the trailing edge of the first sheet of paper moves past the Vertical Transport Sensor (PC10/11/12), the copier determines that it is a double feed condition and provides double feed control.
- If, however, the second sheet of paper has reached the Vertical Transport Roller, the double feed control is not provided since the paper is fed further into the copier by the Vertical Transport Roller. This could result in a paper misfeed or the second sheet of paper being fed through the copier with the first one.
- If double feed control is provided, it results in the paper take-up interval timing becoming longer. That means longer intervals between two successive paper take-up motions, resulting in a decreased cpm (productivity).



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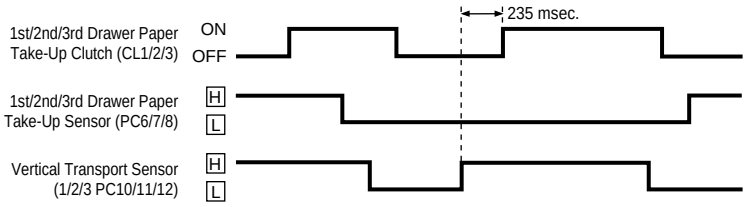

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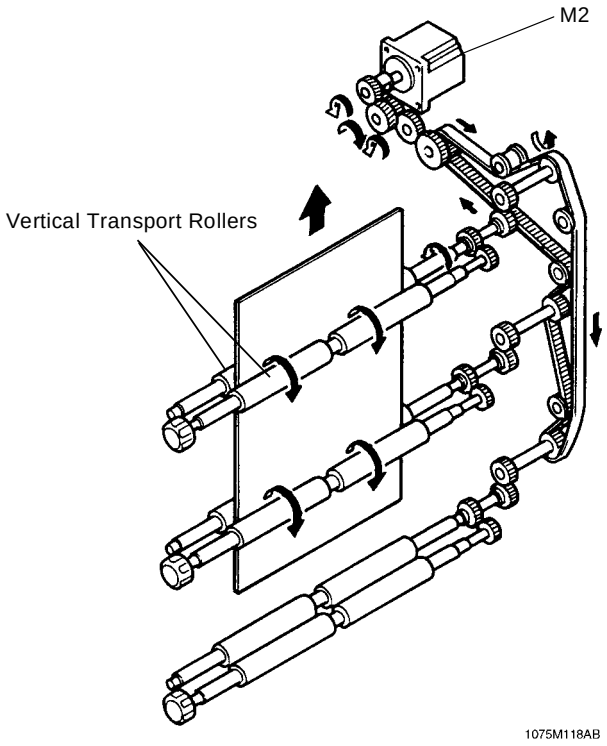
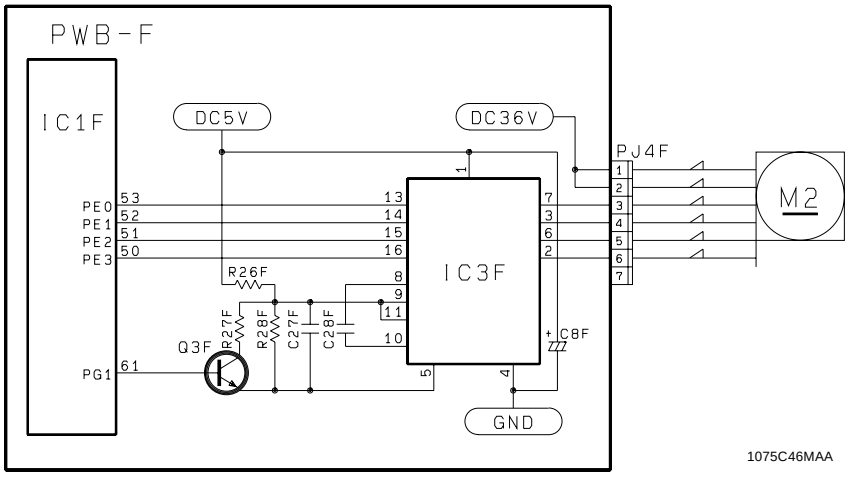
15-15. Vertical Transport Drive Mechanism

- Each Vertical Transport Roller is driven by Vertical Transport Motor M2.

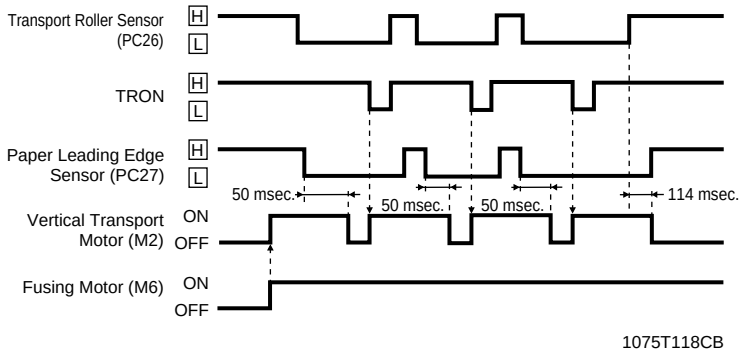


◆ **Vertical Transport Drive Control**

- Vertical Transport Motor M2, a stepping motor, is controlled by the M2 Control signals fed from Master Board PWB-A and output through pins 50, 51, 52, and 53 of IC1F on Drawer S/P Board PWB-F.



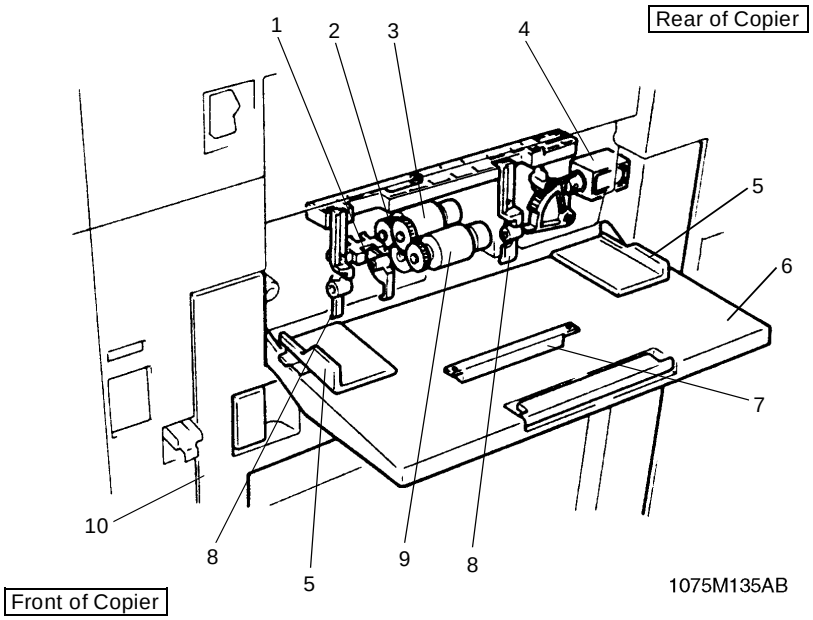
◆ Timing Chart



15-16. Multi Bypass Table

(1) Construction

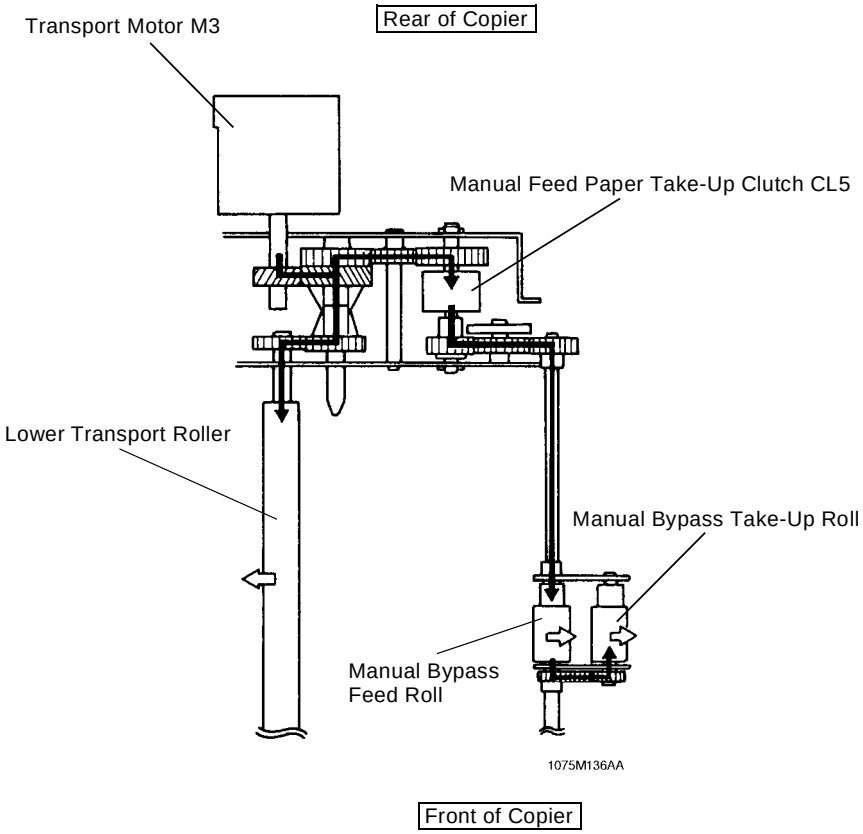
- The Multi Bypass Table consisting of the following parts is fitted to the Right Door of the copier.



1. Manual Feed Paper Empty Sensor PC28
2. Manual Bypass Separator Roll
3. Manual Bypass Feed Roll
4. Manual Feed Paper Pick-Up Solenoid SL9
5. Manual Bypass Edge Guides
6. Manual Bypass Table
7. Manual Feed Size Detecting Resistor VR1
8. Paper Stopper
9. Manual Bypass Take-Up Roll
10. Right Door

(2) Manual Bypass Paper Take-Up Drive Mechanism

- Drive for paper take-up from the Multi Bypass Table is transmitted from Transport Motor M3 via Manual Feed Paper Take-Up Clutch CL5 to the Manual Bypass Feed and Take-Up Rolls.
- Here is the drive train.



(3) Manual Take-Up Roll Pressure Mechanism

- The Manual Bypass Take-Up Roll is operated as follows when Manual Feed Paper Pick-Up Solenoid SL9 is energized and deenergized.
- The two Paper Stoppers, which block the leading edge of the paper stack loaded on the Multi Bypass Table, are also operated as follows as SL9 is energized and deenergized.

	SL9	Take-Up Roll Position	Paper Stoppers
At take-up	Deenergized	Pressing paper	Free
At timings other than take-up	Energized	Retracted	Locked

(Ref.) SL9 is a keeper solenoid.

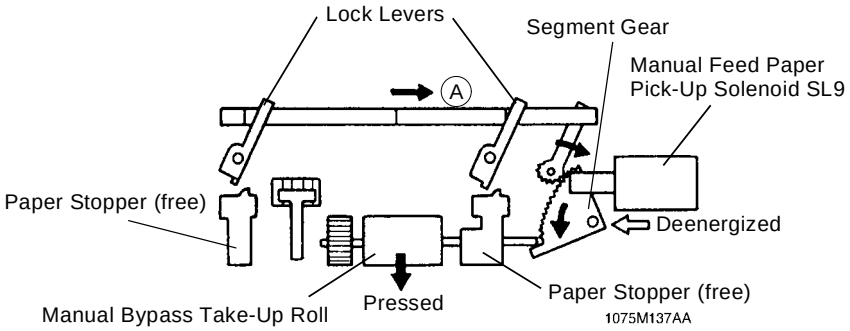
- Here are the operating sequences at paper take-up and at a timing other than paper take-up.

<At Take-Up>

SL9 is deenergized. → The segment gear turns counterclockwise. → The Manual Bypass Take-Up Roll is pressed against the paper stack.

↓

The lock levers are moved in the direction of arrow A. → The Paper Stoppers are free.

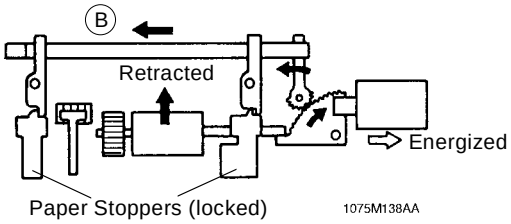


<At Timing Other Than Take-Up>

SL9 is energized. → The segment gear turns clockwise. → The Manual Bypass Take-Up Roll is retracted.

↓

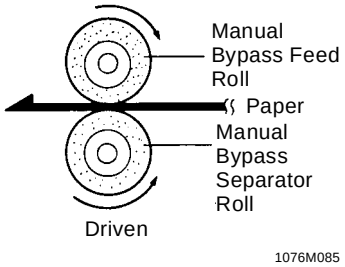
The lock levers are moved in the direction of arrow B. → The Paper Stoppers are locked.



(4) Manual Bypass Paper Separating Mechanism

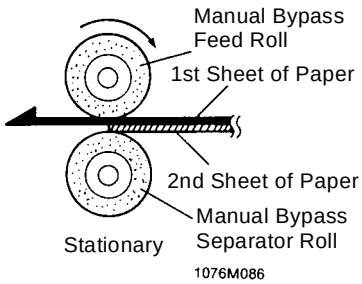
- The paper separating mechanism employs a torque limiter to ensure that only the top sheet of paper is fed in by separating the second sheet of paper from the top one.
- This is accomplished by the difference in friction coefficient between the Manual Bypass Feed and Separator Rolls.

<Normal Feeding>



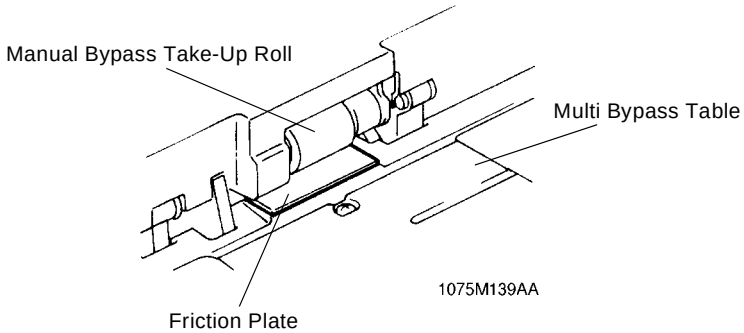
- When only one sheet of paper is taken up, the friction coefficient on the top side of the paper is equal to that on the underside. Driven by the Manual Bypass Feed Roll, the paper drives the Manual Bypass Separator Roll, allowing the paper to be fed onto the Transport Rollers.

<Double Feeding>



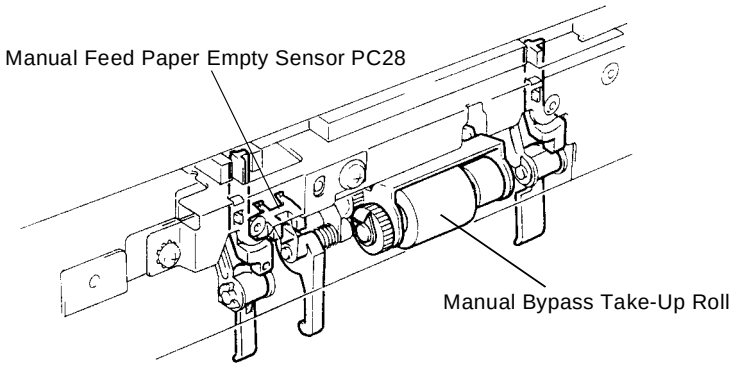
- Since the friction coefficient between the second sheet of paper and the Manual Bypass Separator Roll is greater than that between the first and second sheets of paper, the Manual Bypass Separator Roll is not driven and holds the second sheet of paper. The Manual Bypass Feed Roll thus feeds the first sheet of paper onto the Transport Rollers.

- A friction plate is attached to the Multi Bypass Table immediately under the Manual Bypass Take-Up Roll. It prevents the Manual Bypass Take-Up Roll from taking up two or more sheets of paper when only several sheets of paper are placed on the Multi Bypass Table.



(5) Manual Bypass Paper Empty Detection

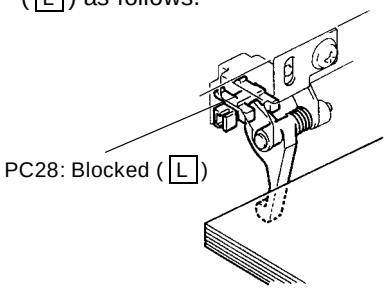
- The Multi Bypass Table is equipped with Manual Feed Paper Empty Sensor PC28 which detects a sheet of paper on the Multi Bypass Table.



1075M140AA

<When Paper is Placed>

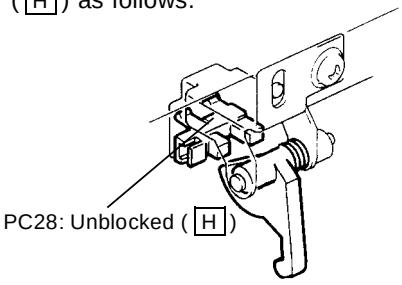
- When paper is placed on the Multi Bypass Table, PC28 is blocked (L) as follows.



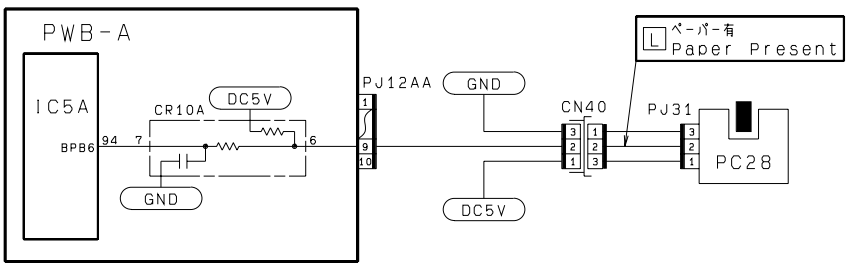
1075M141AB

<When No Paper is Placed>

- When there is no paper on the Multi Bypass Table, PC28 is unblocked (H) as follows.



1075M142AA



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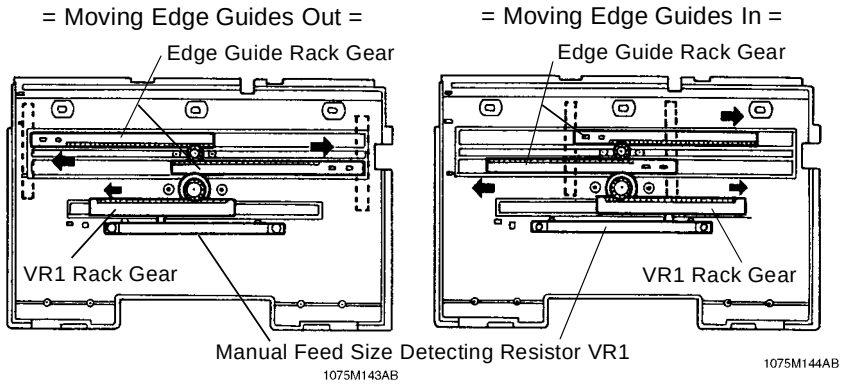
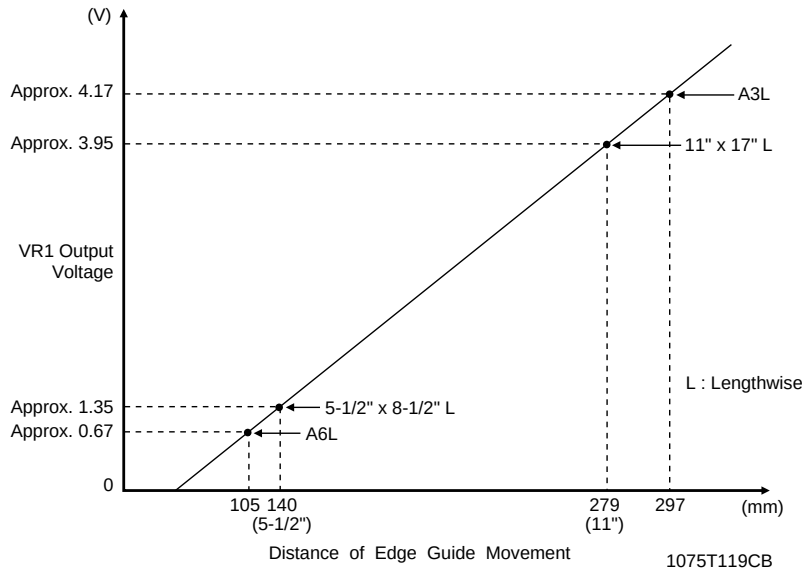
(6) Manual Bypass Paper Width Detection

- In this copier, the original is aligned with the rear edge, while the paper is fed though the center of the copier. For this reason, it becomes necessary to detect the width of the paper placed on the Multi Bypass Table and move the Lens in the Y (crosswise) direction.
- There is a sliding resistor installed whose resistance is varied as the Manual Bypass Edge Guides are moved. The resistor is Manual Feed Size Detecting Resistor VR1 which detects the width of the paper loaded on the table.
- The movement of the Manual Bypass Edge Guides is relayed via the Edge Guide Rack Gear and gear A to the VR1 Rack Gear as illustrated below.



- Here is the relation between the distance of movement of the Edge Guide and the VR1 output voltage.



• The VR1 output voltages are input to pin 75 of IC1A on Master Board PWB-A and the copier knows the paper width by the particular voltage.

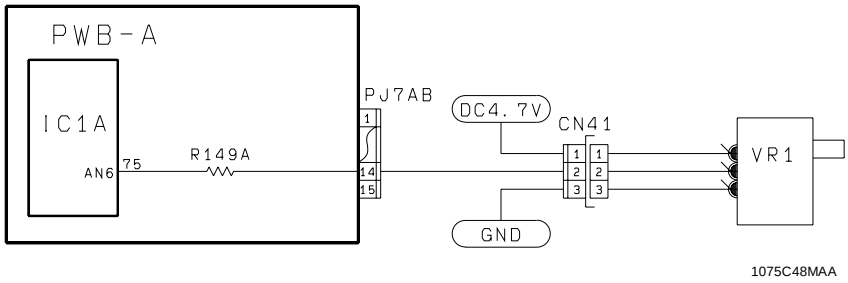
Paper Width	A3, A4C	B4	A4L, A5C	A5L
VR1 Output Voltage (V)	Approx. 4.17	Approx. 3.45	Approx. 2.58	Approx. 1.49

Paper Width	11" × 17"L	8-1/2" × 11"L	5-1/2" × 11"L
VR1 Output Voltage (V)	Approx. 3.95	Approx. 2.74	Approx. 1.35

L: Lengthwise; C: Crosswise

<Note> The VR1 output voltages given above are only for reference as they vary depending on VR1 part-to-part variations and differences in installed position.

<Ref.> Whenever VR1 has been replaced, or removed and reinstalled, or memory cleared, run the FD operation of Function and set the reference value for paper width detection. This will compensate for VR1 part-to-part variations and differences in installed position.

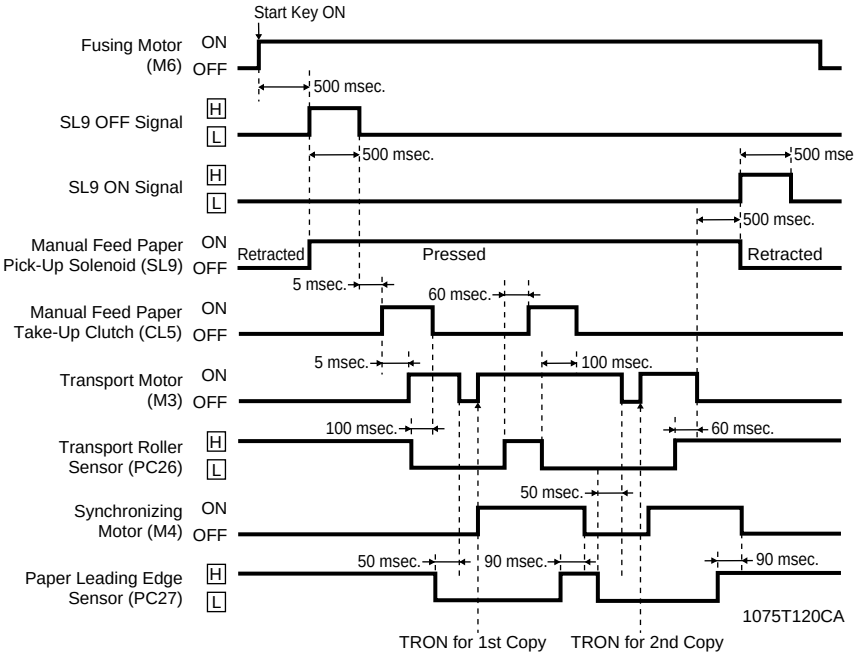


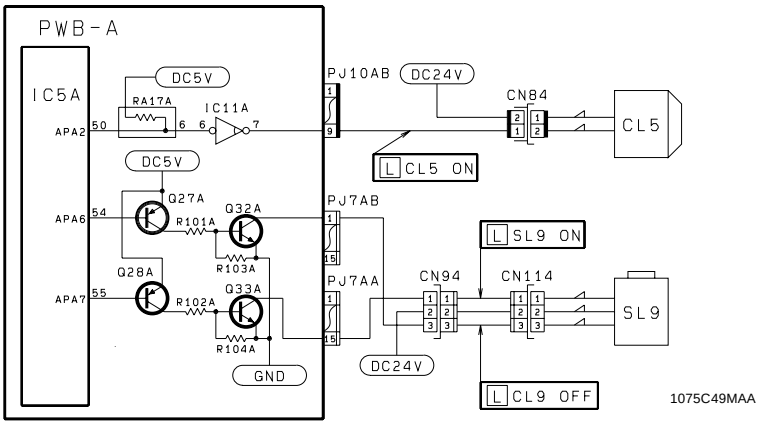
1075C48MAA

(7) Manual Bypass Take-Up Control

- Manual Feed Paper Pick-Up Solenoid SL9, which presses the Manual Bypass Take-Up Roll against and releases it from the paper stack on the Multi Bypass Table, is controlled by the SL9 ON signal output from pin 54 of IC5A and SL9 OFF signal output from pin 55 of IC5A on Master Board PWB-A.
- Manual Feed Paper Take-Up Clutch CL5, which couples the drive from Transport Motor M3, is controlled by the CL5 Remote signal output from pin 50 of IC5A on PWB-A.
- Here is the timing chart.

<Multi Copy Cycle for 2 Copies>

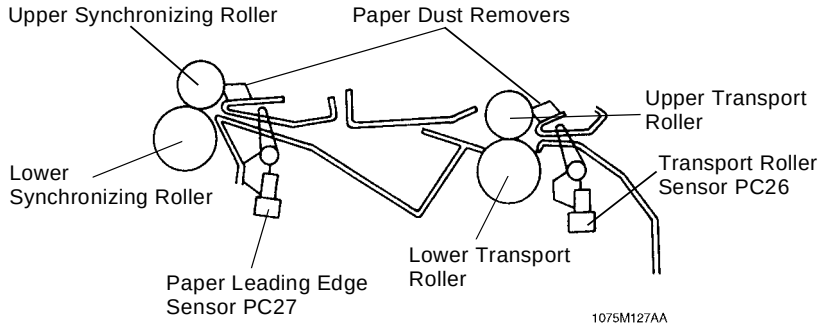


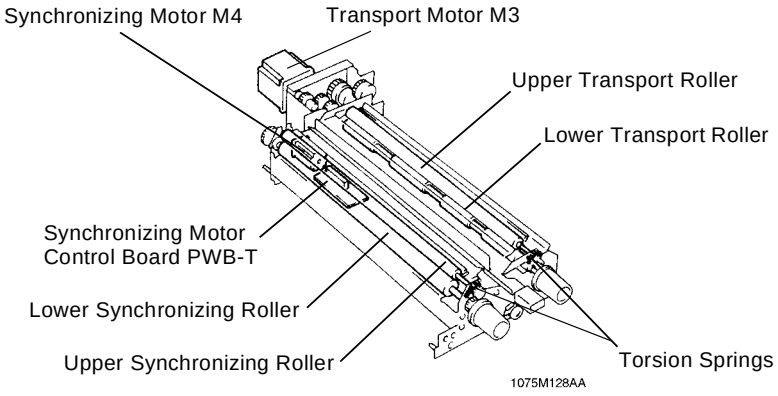


16 TRANSPORT/SYNCHRONIZING ROLLERS UNIT

16-1. Construction

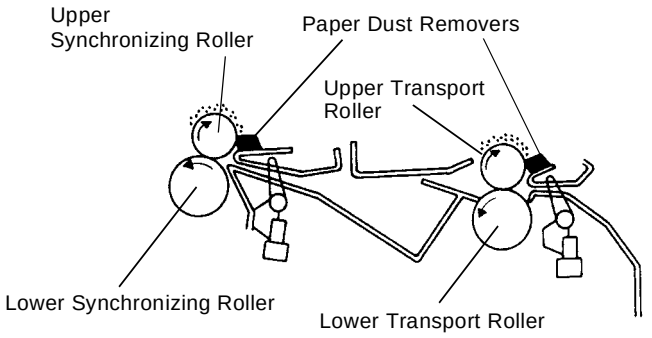
- The Transport/Synchronizing Rollers Unit can be removed as an assembly for easy serviceability.
- Each of the Transport and Synchronizing Rollers is driven by a stepping motor dedicated to it so that the paper is properly fed by the Transport Rollers and a loop is positively formed in the paper before the Synchronizing Rollers.
- The Upper Transport Roller (a metal roller covered with a polyvinyl chloride tubing) and the Lower Transport Roller (a rubber roller) are fixed to the front and rear frames of the unit.
- The Upper Synchronizing Roller (a metal roller covered with a polyvinyl chloride tubing) and the Lower Synchronizing Roller (a rubber roller) are also fixed to the front and rear frames of the unit.
- The Transport/Synchronizing Rollers Unit is made of the following parts.





16-2. Paper Dust Remover

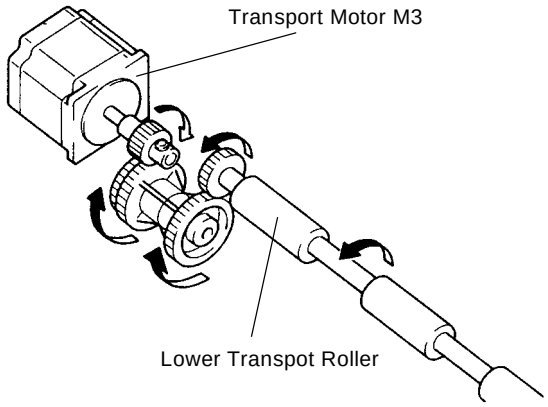
- The Upper Transport Roller and Upper Synchronizing Roller are each equipped with a Paper Dust Remover to prevent paper dust from sticking to the surface of the PC Drum.
- Since these two rollers are covered with a vinyl tubing, triboelectric charging occurs as the rollers turn in contact with the Paper Dust Remover.
- As paper is fed through the rollers, the charges on the tubing attract paper dust from the paper. The dust is then transferred onto the Paper Dust Remover.



1075M129AA

16-3. Transport Roller Drive Mechanism

- The Upper Transport Roller is driven by the Lower Transport Roller.
- The Lower Transport Roller is driven by Transport Motor M3 through a gear train.

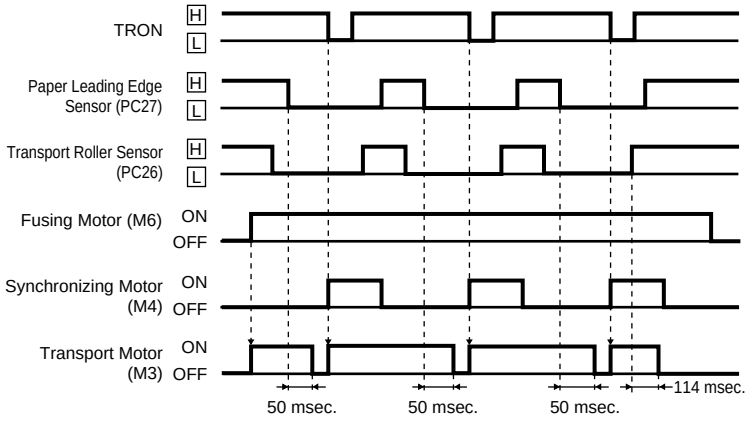


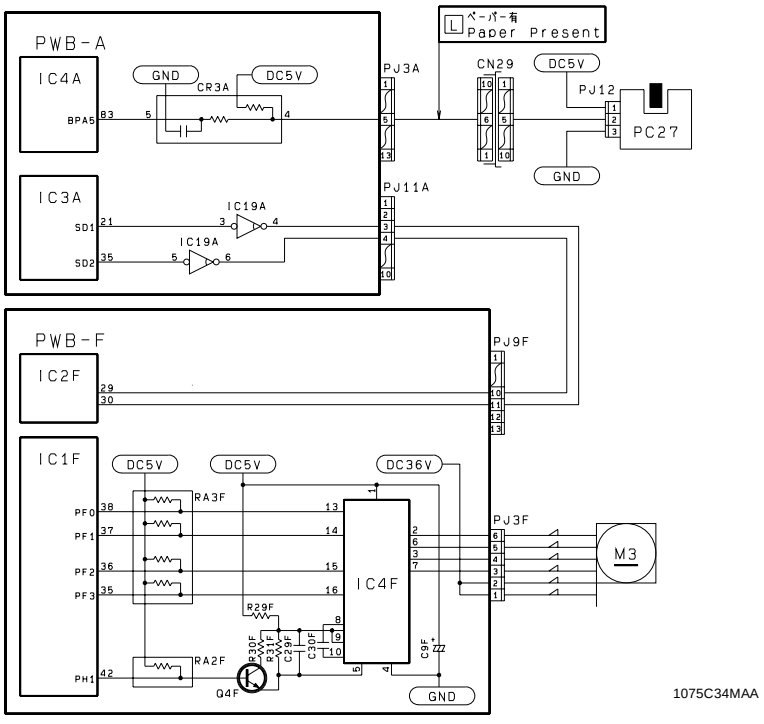
1075M130AA

16-4. Transport Roller Drive Control

- The Transport Rollers are driven by Transport Motor M3.
- M3, a stepping motor, is controlled by energizing the four internal coils using pulse signals output from pins 2, 6, 3, and 7 of IC4F on Drawer S/P Board PWB-F, as controlled by Master Board PWB-A.
- The Transport Rollers are driven at the following timing.

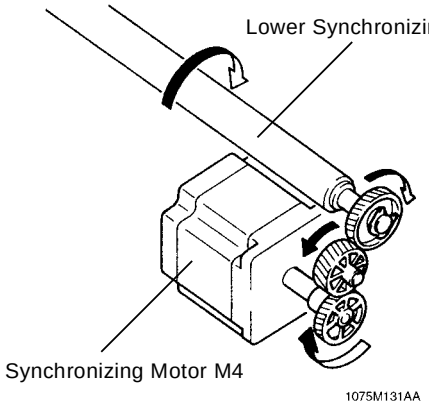
<Multi Copy Cycle for 3 Copies>





16-5. Synchronizing Roller Drive Mechanism

- The Upper Synchronizing Roller is driven by the Lower Synchronizing Roller.
- The Lower Synchronizing Roller is driven by Synchronizing Motor M4 through a gear train.

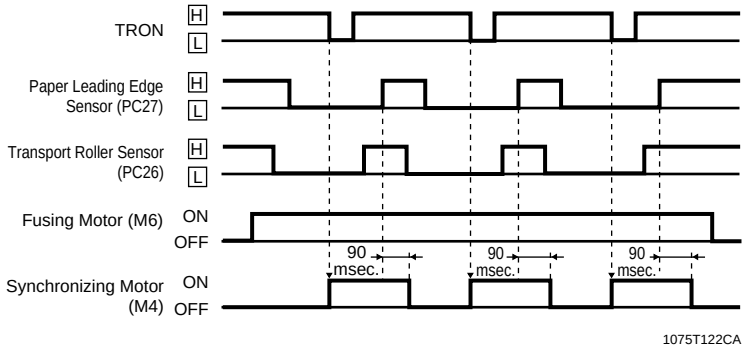


16-6. Synchronizing Roller Drive Control

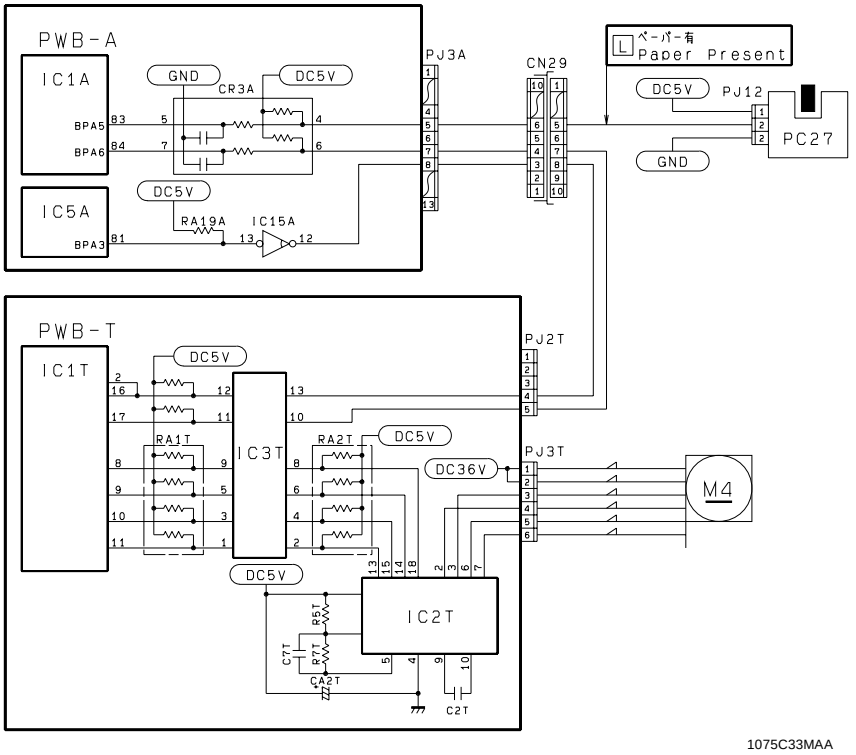
- The Synchronizing Rollers are driven by Synchronizing Motor M4.
- M4, a stepping motor, is controlled by energizing the four internal coils using pulse signals output from pins 2, 3, 6, and 7 of IC2T on Synchronizing Motor Control Board PWB-T, as controlled by Master Board PWB-A.
- The Synchronizing Rollers are started in synchronism with the Registration signal (TRON).

* The BASE signal is output when the Scanner reaches a given point in its scan motion.
* The TRON signal is output from Scanner Control Processor Board PWB-J at a given time after the Image Leading Edge signal (BASE) has been output.

- The Synchronizing Rollers are stopped at a given time after the trailing edge of the paper has moved past Paper Leading Edge Sensor PC27.
- The Synchronizing Rollers are driven at the following timing.



1075T122CA

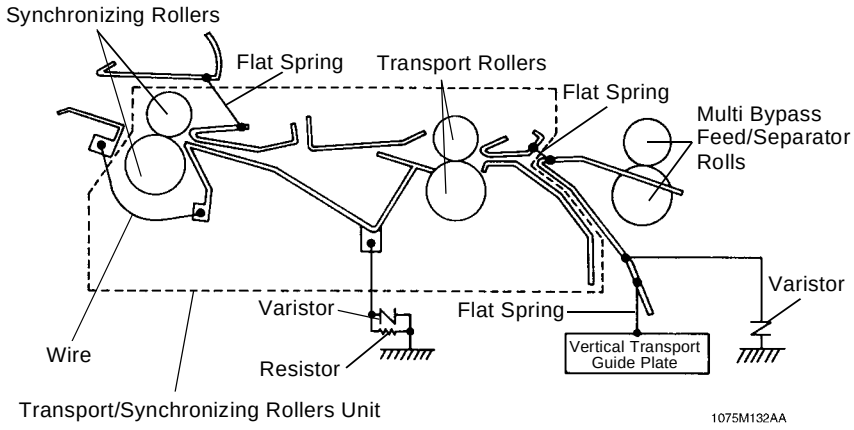

PWB-A
IC1A
GND
CR3A
DC5V
BPA5
BPA6
IC5A
RA19A
IC15A
BPA3
PJ3A
CN29
ベーパー有
Paper Present
DC5V
PJ12
PC27
GND
PWB-T
IC1T
DC5V
RA1T
IC3T
RA2T
DC5V
PJ2T
DC36V
PJ3T
M4
DC5V
IC2T
R5T
C7T
R7T
CA2T
C2T

1075C33MAA

16-7. Prevention of Low Image Density on Copy

During conditions of high humidity when the paper is damp, charges would tend to flow from the Image Transfer Corona through the paper and guide plates to the ground. This results in low image density on the copies.
To prevent this from occurring, a plastic spacer is installed at the pivot of the Right Door and where the Transport/Synchronizing Rollers Unit is fitted.

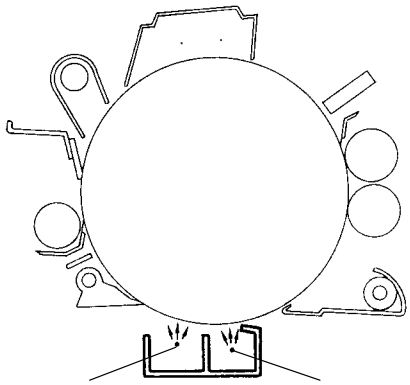
If, however, the resistance with the ground is made infinity, the guide plates would build up charges and a spark can occur with other guide plates, resulting in a malfunction. To prevent this, an 82-megohm resistor and a 1-kV varistor are connected to the guide plates. The Manual Bypass, Vertical Transport, Transport/Synchronizing Roller, and Pre-Image Transfer Guide Plates are connected by flat springs and a wire.
A 1-kV varistor is connected to the Multi Bypass Guide Plate to protect the CPU from noise when the right door is opened.



17 IMAGE TRANSFER/PAPER SEPARATOR CORONAS

17-1. Image Transfer/Paper Separator Coronas

- The Image Transfer Corona, employing the corotron system, applies a DC negative corona emission to the underside of the paper thereby attracting the positively charged toner onto the surface of the paper to form a visible, developed image of the original.
- When the image transfer corona output of Image Transfer/Paper Separator HV HV2 turns ON, a negative DC voltage of about 7kV is applied to the corona wire and a corona emission is applied.
- The Paper Separator Corona, employing the corotron system, showers the underside of the paper with both positive and negative charges so that the paper can be easily separated from the PC Drum.
- When the paper separator corona output of HV2 turns ON, an AC voltage of about 5kV plus positive DC900V bias voltage is applied to the corona wire and a corona emission is applied. The bias voltage of positive DC900V applied to the Paper Separator Corona is switched to positive DC450V in the second copy cycle of the 2-sided copy mode. This represents the fact that the back side of the copy offers better paper separation than the front side.
- In addition to the Paper Separator Corona, Paper Separator Fingers are also used to ensure that the paper is effectively separated. (For details, see 18-5. PC Drum Paper Separator Fingers.)
- The Image Transfer/Paper Separator Coronas Unit is provided with a Pre-Image Transfer Guide Plate that determines the angle at which the paper comes into contact with the PC Drum and keeps an optimum distance between the paper and the PC Drum so that the image may be properly transferred onto the paper. The Pre-Image Transfer Guide Plate is secured with an insulating material and connected to the guide plates near the Synchronizing Rollers. This effectively prevents poor image transfer occurring due to damp paper when it is very humid. (See p. M-142 for the guide plates near the Synchronizing Rollers.)
- There is a mechanism provided that automatically cleans the corona wires at a given timing, thereby preventing uneven charging caused by a dirty wire. (For details, see p. M-145.)



Paper Separator Corona Wire Image Transfer Corona Wire

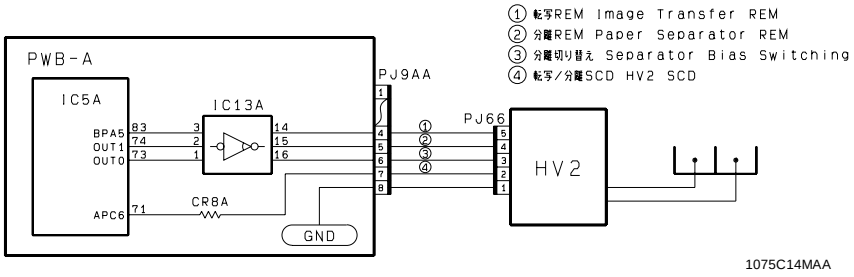
1075M074AA

17-2. Image Transfer/Paper Separator Coronas Control

Turning ON and OFF the Image Transfer/Paper Separator Coronas is controlled by the signal output from pins 74 and 83 of IC5A on Master Board PWB-A.

<Image Transfer/Paper Separator Coronas ON Timing>
Approx. 250 msec. after PC Drum Drive Motor M5 has been energized (p. M-26), the image transfer/paper separator corona output from Image Transfer/Paper Separator HV HV2 is turned ON.

<Image Transfer/Paper Separator Coronas OFF Timing>
Approx. 770 msec. after Scanner Control Processor Board PWB-J has output a SCEND signal, the image transfer/paper separator corona output from HV2 is turned OFF.

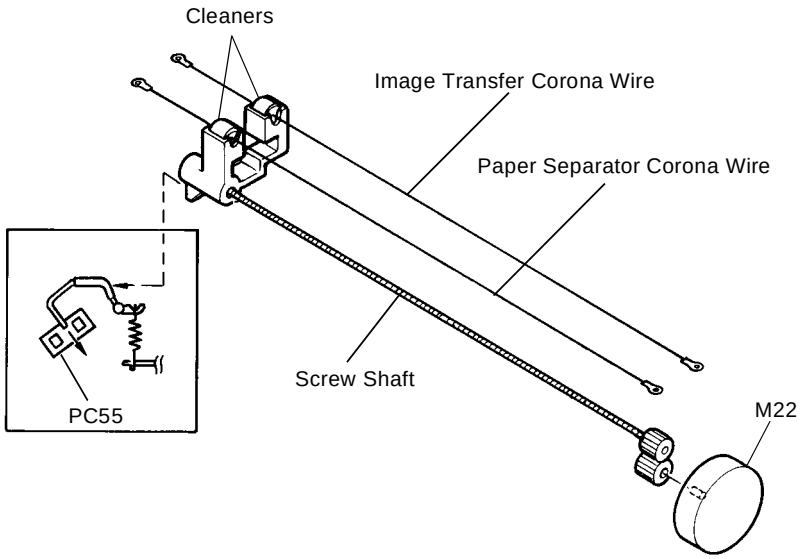


17-3. Image Transfer/Paper Separator Corona Wires Cleaning Mechanism/Control

The Image Transfer/Paper Separator Coronas are provided with a mechanism that automatically cleans its corona wires. It effectively removes from the wires any toner and dust particles which would otherwise cause uneven charging, white streaks on copies, and charge leak.

<Mechanism>

- When Image Transfer/Paper Separator Charge Wire Cleaning Motor M22 is energized, its drive is transmitted to the Screw Shaft. This in turn moves the two Cleaners mounted on the Screw Shaft.
- M22 is a two-phase stepping motor. The Cleaners are detected at their standby position (which is the reference position for the cleaning motion) by Transfer/Separator Wire Cleaner Home Position Sensor PC55.
- The Cleaners make one round trip per each cleaning cycle.



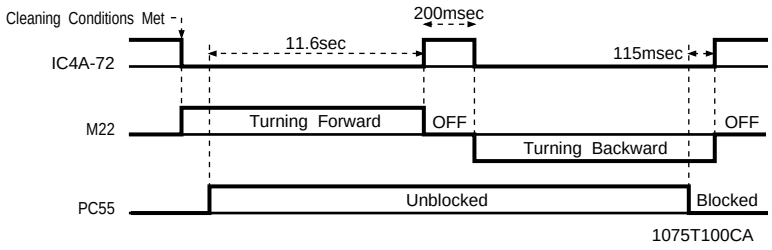
<Control>

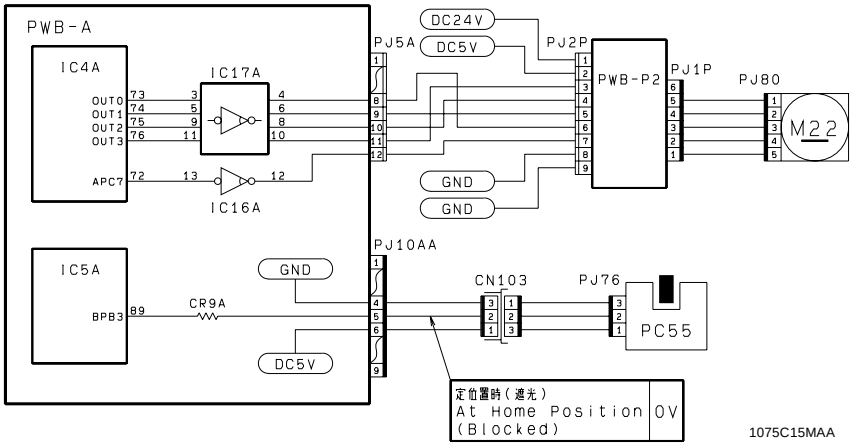
- The Image Transfer/Paper Separator corona wires are automatically cleaned under the following conditions. The cleaning function is, however, disabled if the "Charge Wire Cleaning" function of "System Input" available from the Tech. Rep. mode has been set to "Off".

(1) A period of 200 msec. has elapsed after Power Switch S1 has been turned ON.
(2) The number of copies made exceeds 2,000 after S1 has been turned ON and 10 minutes elapse after the last copy cycle has been completed (the same timing as the auto clear when paper is empty).
(3) An Image Transfer/Paper Separator Coronas malfunction (C0210), which has been detected, is reset.
(4) A misfeed/malfunction, which has been detected, is reset with a sheet of paper remaining at the area near the Image Transfer/Paper Separator Corona.

- No control panel indication is given for the cleaning cycle and the copier accepts the press of the Start Key, though it only feeds the paper up to the Synchronizing Rollers and starts the scan after the cleaning cycle is completed.
- If the timing arrives for the timer power OFF function during a cleaning cycle, the copier is turned OFF after the current cleaning cycle is completed.
- M22 is energized and deenergized by a signal output from pin 72 of IC4A on PWB-A and fed via Image Transfer/Paper Separator Charge Wire Cleaning Motor Drive Board PWB-P2.
- The Cleaners are detected at their standby position when the light blocking plate of the Cleaners blocks Transfer/Separator Wire Cleaner Home Position Sensor PC55.

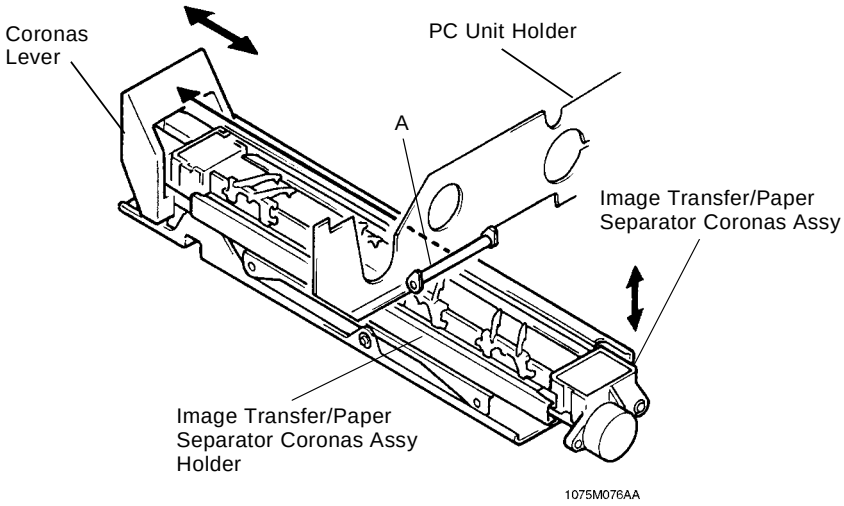
- When the above conditions for auto wire cleaning are met, the cleaning sequence is carried out at the following timing.



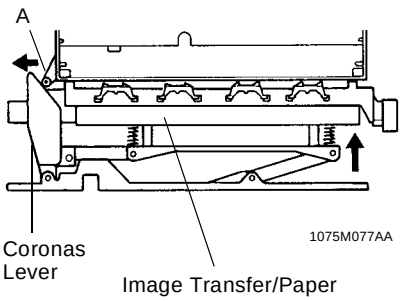

PWB-A
IC4A
OUT0
OUT1
OUT2
OUT3
APC7
IC17A
IC16A
PJ5A
DC24V
DC5V
GND
GND
PJ2P
PWB-P2
PJ1P
PJ80
M22
IC5A
BPB3
CR9A
GND
DC5V
PJ10AA
CN103
PJ76
PC55
定位置時(遮光)
At Home Position
(Blocked)
0V
1075C15MAA

17-4. Image Transfer/Paper Separator Coronas Assy Retracting Mechanism

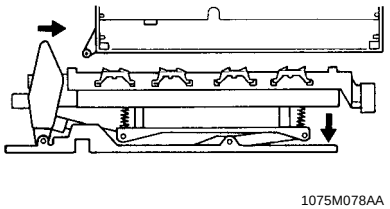
- The Image Transfer/Paper Separator Coronas Assy Holder is designed to retract downward to prevent the coronas assy from contacting the PC Drum when the PC Unit is slid out of the copier.
- When the PC Unit is in the copier, shaft A fitted to the PC Unit Holder pushes the Coronas Lever rearward. As a result, the Image Transfer/Paper Separator Coronas Assy Holder, which is connected to the Coronas Lever, is raised to be pressed against the PC Unit.
- When the PC Unit is slid out of the copier, shaft A leaves and releases the Coronas Lever. This lowers the Image Transfer/Paper Separator Coronas Assy Holder, which is the retracted position of the Image Transfer/Paper Separator Coronas Assy.



When PC Unit is in Copier

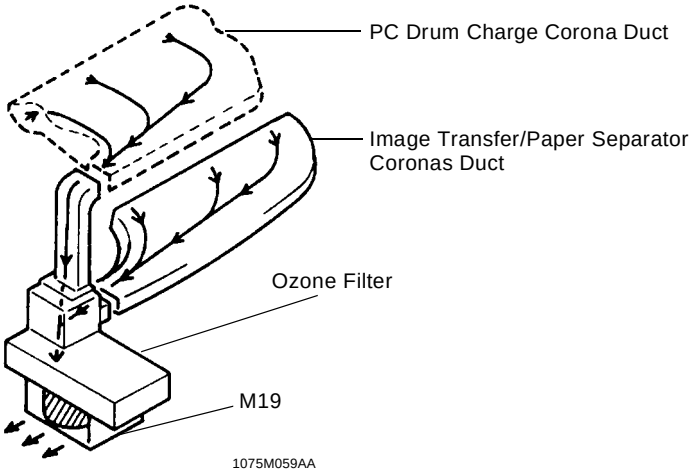


When PC Unit is Slid out of Copier



17-5. Ozone Filter

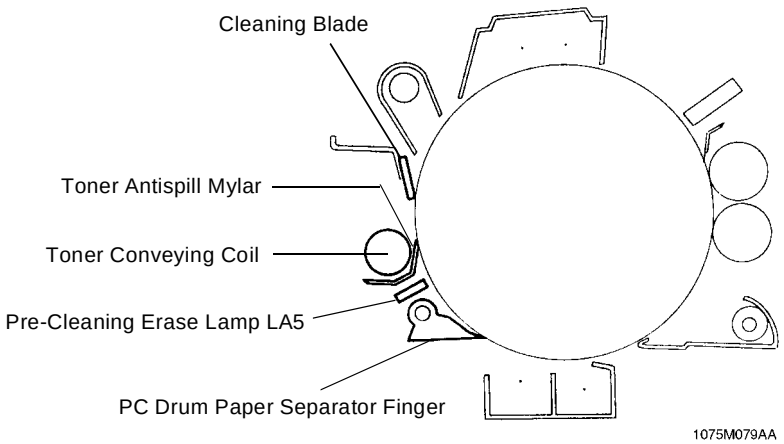
- Ozone produced by the Image Transfer/Paper Separator Coronas is absorbed by the Ozone Filter from the air being drawn out of the copier by Ventilation Fan Motor M19.
- In this copier, this Ozone Filter absorbs ozone produced by not only the Image Transfer/Paper Separator Coronas but also the PC Drum Charge Corona. (For the control of M19, see 9-4. Ozone Filter.)



18 CLEANING UNIT

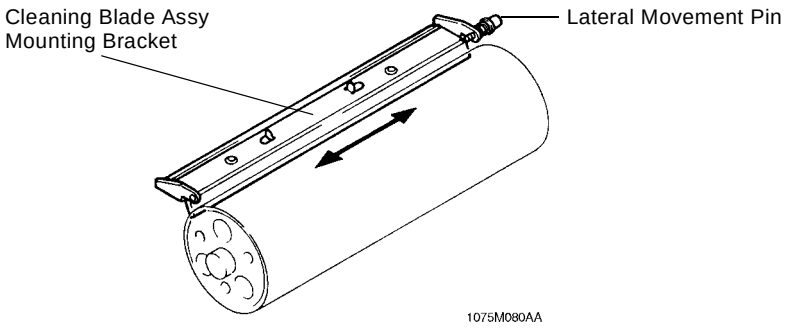
18-1. Construction of the Cleaning Unit

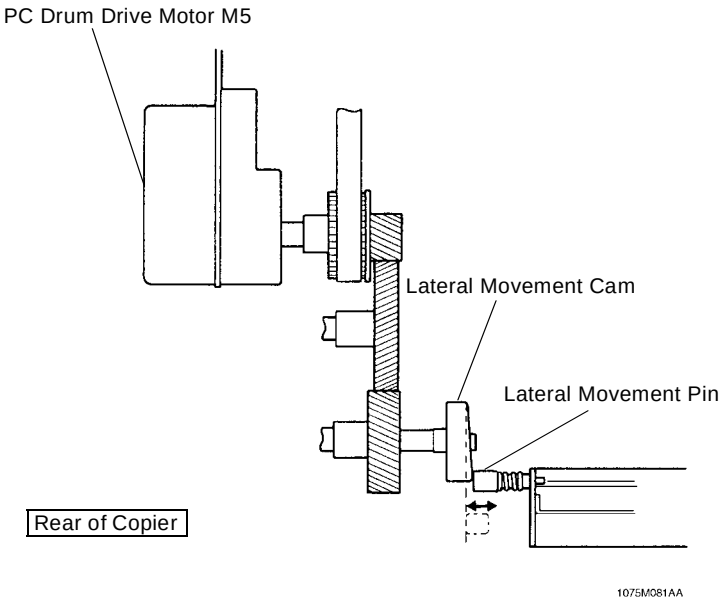
- The Cleaning Blade is pressed tightly against the surface of the PC Drum and scrapes off any toner remaining on the surface after image transfer and paper separation have been completed. The scraped-off toner falls into the Toner Conveying Coil and is conveyed by that Coil to the Toner Chute into the Toner Collecting Bottle at the back of the copier.
- The Blade Tension Spring ensures that the Cleaning Blade is pressed against the PC Drum surface at a given constant pressure.
- The Toner Antispill Mylar prevents the scraped-off toner from falling onto the areas inside the copier, ensuring all scraped-off toner falls on the Toner Conveying Coil.
- The back surface of the Cleaning Blade has the toner applied when setting up the copier and that accumulated during a number of copy cycles. This toner can stick again to the areas on the surface of the PC Drum where there remains surface potential, adversely affecting the copy image. This copier is equipped with Pre-Cleaning Erase Lamp LA5 located immediately under the Cleaning Unit. Light from LA5 striking the surface of the PC Drum reduces surface potential, thereby preventing toner accumulated on the back side of the Cleaning Blade from sticking to the surface of the PC Drum.
- The PC Drum Paper Separator Fingers join forces with the Paper Separator Corona to positively separate the paper from the surface of the PC Drum.



18-2. Cleaning Blade Moving Mechanism

- The Cleaning Blade is moved to the front and rear while the PC Drum is turning to ensure that all residual toner is scraped cleanly off the surface of the PC Drum, thereby preventing the PC Drum as well as Cleaning Blade from deteriorating.
- Drive from PC Drum Drive Motor M5 turns the Lateral Movement Cam. The Lateral Movement Pin on the end of the Cleaning Blade Assy Mounting Bracket is pushed by the cam, which results in the Cleaning Blade being moved to the front and rear.

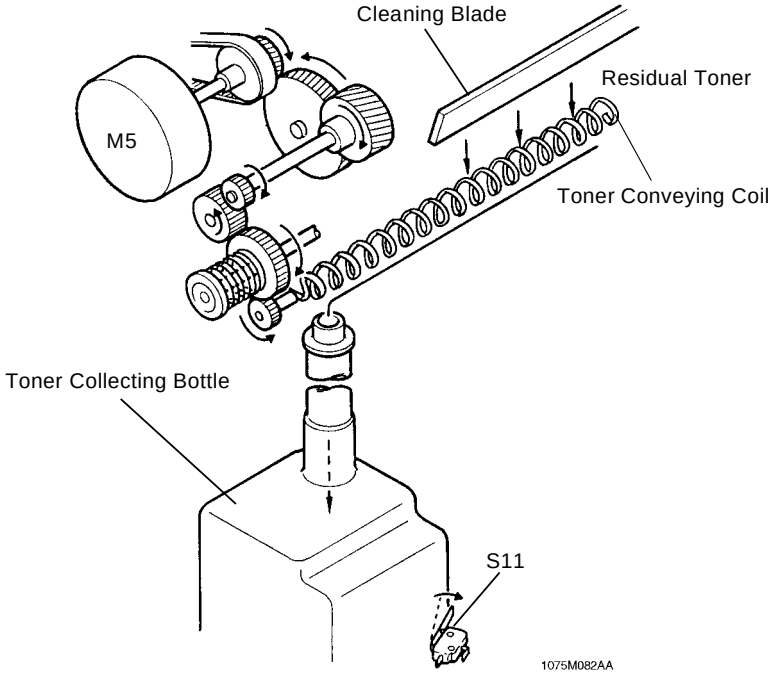




18-3. Toner Conveying/Collecting Mechanism

- The toner which has been scraped off the surface of the PC Drum by the Cleaning Blade is conveyed to the rear of the copier by the Toner Conveying Coil and dropped into the Toner Collecting Bottle through the Toner Chute.
- The Toner Conveying Coil is driven by PC Drum Drive Motor M5. (For the control of M5, see p. M-26.)

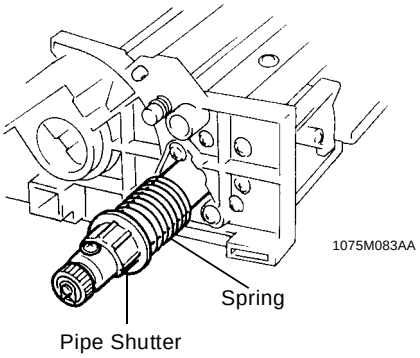
- The Toner Collecting Bottle has a capacity of approx. 13 liters.
- The amount of toner collected in the Toner Collecting Bottle can be checked through the "Consumables Counter" of the Tech. Rep. mode. When the count of "Toner Collect" of the "Consumables Counter" reaches the prescribed setting (400K), the message "Maintenance time. Code: M2" (warning) appears on the Touch Panel. If copies are further made, the copier inhibits the initiation of a new copy cycle as soon as it has made 5,000 more copies. (For details, see "SWITCHES ON PWBs".)
- Toner Collecting Bottle Set Switch S11 is provided to detect the Toner Collecting Bottle installed in position so that the copier can inhibit the initiation of a copy cycle if the Toner Collecting Bottle is not installed.



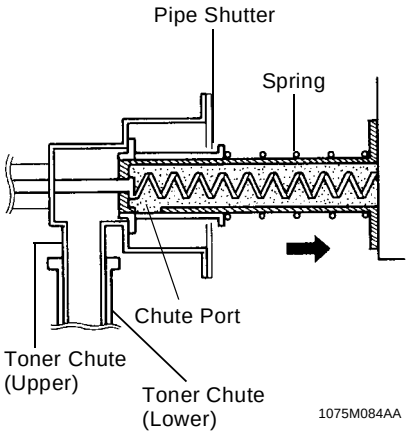
<Pipe Shutter Mechanism>

- There is a mechanism called the Pipe Shutter that prevents spent toner from spilling, provided at the Chute Port.
- The Toner Conveying Pipe has an opening in the bottom at the rear end which is covered and uncovered by the Pipe Shutter as the PC Unit is slid out of, and into, the copier.
- When the PC Unit is slid into the copier, the Pipe Shutter is held back by the Toner Chute, while the Toner Conveying Pipe passes into the Toner Chute (Upper) until the opening in the Toner Conveying Pipe is aligned with the Chute Port. As a result, toner falls through the Toner Chute into the Toner Collecting Bottle.

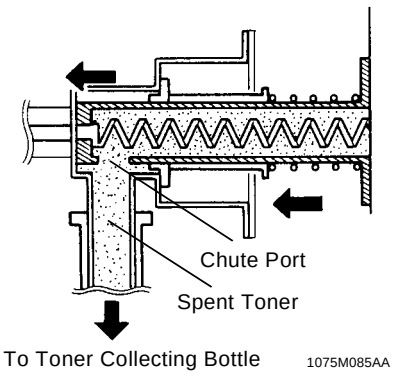
- When the PC Unit is slid out of the copier, the Pipe Shutter springs back to the rear, thus covering the opening in the Toner Conveying Pipe, preventing toner from spilling.



When PC Unit is slid out of Copier



When PC Unit is slid into Copier

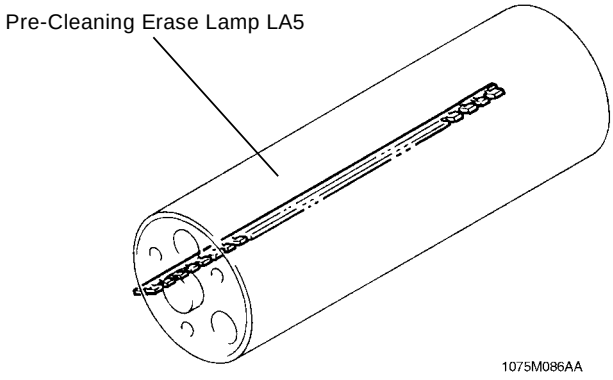


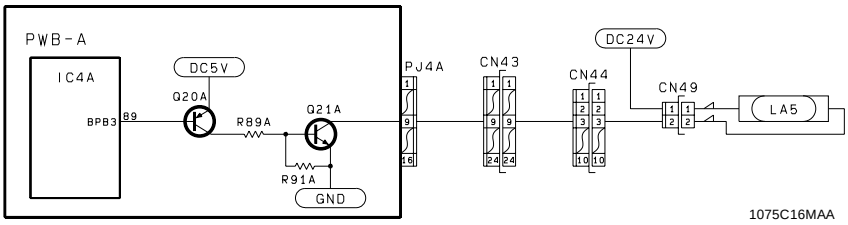
18-4. Pre-Cleaning Erase Lamp LA5 ON/OFF Control

- Pre-Cleaning Erase Lamp LA5 is made up of 64 LEDs.
- The ON/OFF timing of LA5 is in synchronism with that of Pre-Image Transfer Erase Lamp LA4.
- LA5 is turned ON and OFF by the signal output from pin 89 of IC4A on Master Board PWB-A.

<LA5 ON Timing>
LA5 turns ON approx. 450 msec. after PC Drum Drive Motor M5 has been energized (p. M-26).

<LA5 OFF Timing>
LA5 turns OFF approx. 890 msec. after Scanner Control Processor Board PWB-J has output an SCEND signal.

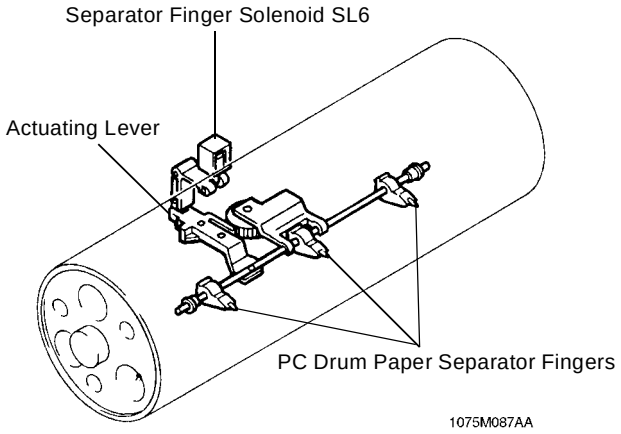




18-5. PC Drum Paper Separator Fingers Moving Mechanism/Control

<Mechanism>

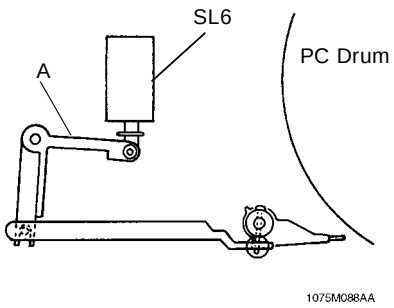
- The PC Drum Paper Separator Fingers function, together with the Paper Separator Corona, to ensure good separation of paper from the PC Drum after image transfer has taken place.
- The Paper Separator Fingers are made of metal with their tips ground to minimize damage to the surface of the PC Drum.
- There are three Paper Separator Fingers provided to cope with any paper size.
- The Paper Separator Fingers are pressed against the surface of the PC Drum to positively separate paper from it. Further, to minimize damage to the PC Drum, the Fingers are moved back and forth.



= Finger Pressing Motion =

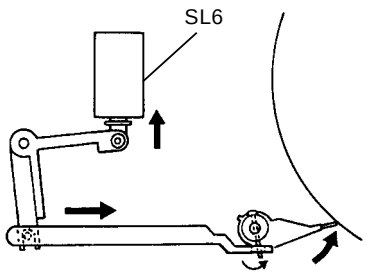
- The PC Drum Paper Separator Fingers are pressed against the surface of the PC Drum by Separator Finger Solenoid SL6 as it is energized at a timing to separate paper from the surface of the PC Drum.
- When SL6 is energized, part A of the Actuating Lever is raised. This moves the lower part of the lever in the direction of the arrow. Since the Finger Shaft is connected to the Actuating Lever at B, the Paper Separator Fingers are turned counterclockwise. This brings the fingers into contact with the surface of the PC Drum. The pressure the Paper Separator Fingers exert against the surface of the PC Drum is maintained at approx. 1g.
- When SL6 is deenergized, the Actuating Lever is lowered by the tension of the spring. This results in the Finger Shaft being turned clockwise, causing the Paper Separator Fingers to be moved away from the surface of the PC Drum.

When Separator Finger Solenoid SL6 is deenergized



1075M088AA

When Separator Finger Solenoid SL6 is energized



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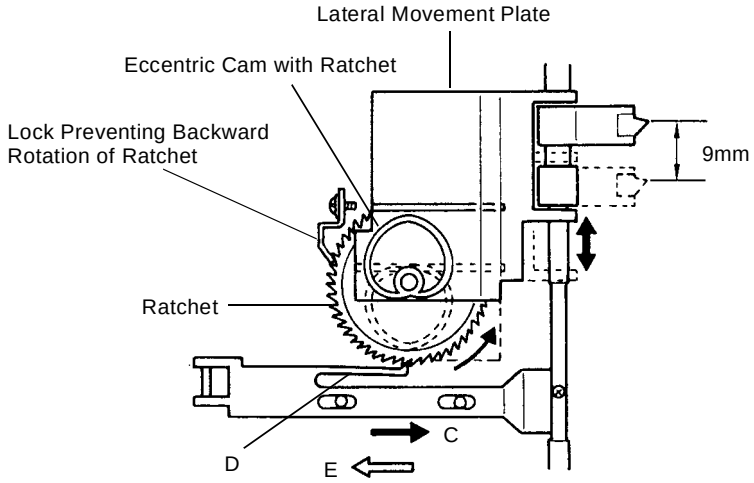
= Finger Back-and-Forth Motion =

- The PC Drum Paper Separator Fingers are moved in the crosswise direction by the eccentric cam with ratchet when Separator Finger Solenoid SL6 is operated.
- When SL6 is energized, the Actuating Lever is moved in the direction of arrow C. At this time, pawl D moves over the ratchet one tooth, which is a given amount of rotary motion of the eccentric cam. When SL6 is deenergized, the Actuating Lever is returned to the original position (in the direction of arrow E) by the tension of the spring. As a result, pawl D moves over the ratchet one tooth back. (The ratchet is not turned backward as it is provided with a lock that prevents the ratchet from turning backward.)
- According to the profile of the eccentric cam, the Lateral Movement Plate is moved as the eccentric cam turns. This results in the Finger Shaft being moved back and forth over an approx. 9 mm distance. (One complete turn of the eccentric cam is equivalent to one round trip of the fingers.)



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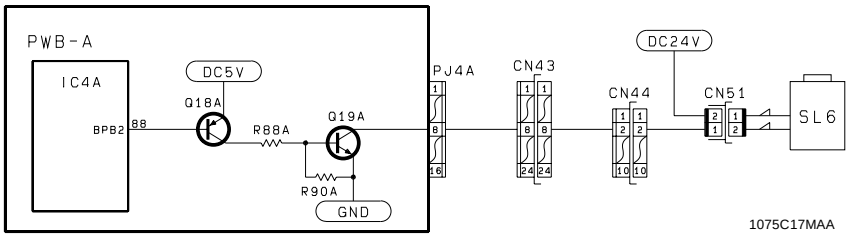
<Control>
Separator Finger Solenoid SL6 is energized and deenergized by the signal output from pin 88 of IC4A on Master Board PWB-A.

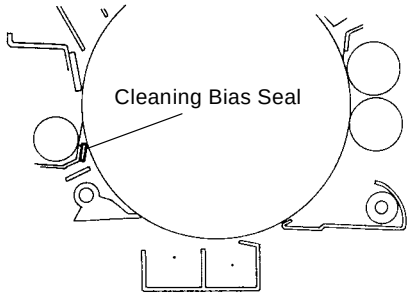
<SL6 Energization Timing>
SL6 is energized approx. 120 msec. after Scanner Control Processor Board PWB-J has output a TRON (registration) signal.

<SL6 Deenergization Timing>
SL6 is deenergized approx. 280 msec. after it has been energized.



18-6. Cleaning Bias (Option)

- A Cleaning Bias Seal can be installed optionally.
- It is installed according to the type of copy paper the user uses.
- It must be installed if the user uses acid paper which contains a lot of talc.
- A bias voltage of approx. DC+410V is applied to the Cleaning Bias Seal by Seal Bias HV3, thereby attracting talc from the surface of the PC Drum.



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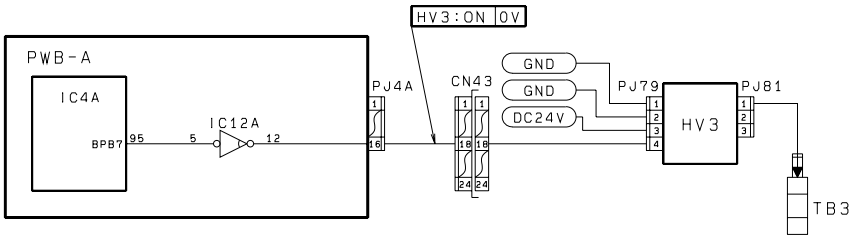
- The cleaning bias is turned ON and OFF by the signal output from pin 95 of IC4A on Master Board PWB-A.

<Cleaning Bias ON Timing>
Approx. 120 msec. after Scanner Control Processor Board PWB-J has output a TRON (registration) signal, HV3 is turned ON to output the bias voltage.

<Cleaning Bias OFF Timing>
HV3 is turned OFF approx. 890 msec. after PWB-J has output a SCEND signal.



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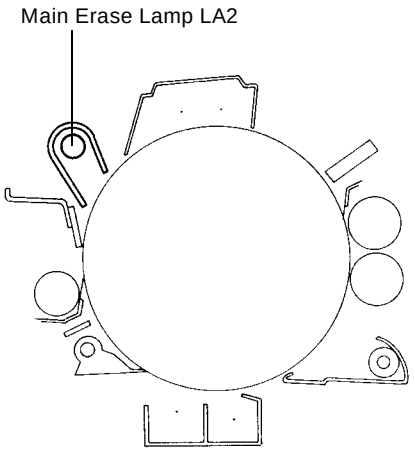
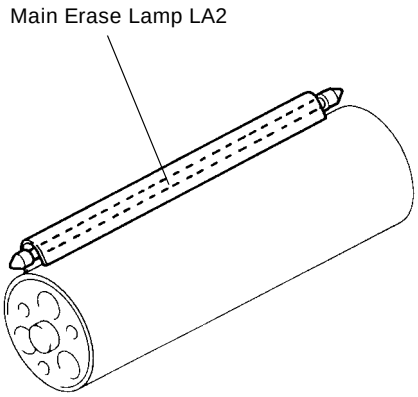
19 MAIN ERASE LAMP

19-1. Main Erase Lamp

- Main Erase Lamp LA2 neutralizes any surface potential remaining on the surface of the PC Drum after cleaning.
- It consists of nine incandescent tungsten-filament lamps connected in a series inside a glass tube.



1075M092AA



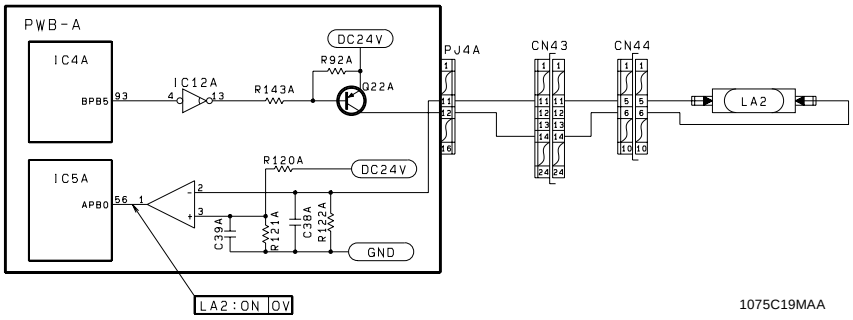
1075M093AA

19-2. Main Erase Lamp LA2 ON/OFF Control

- LA2 is turned ON and OFF by the signal output from pin 93 of IC4A on Master Board PWB-A.
- The signal input via LA2 to pin 56 of IC5A as the LA2 ON signal is output from pin 93 of IC4A is used to determine whether LA2 is properly ON. (If any unusual condition is detected, a malfunction code of C0E00 is shown on the Touch Panel.

<LA2 ON Timing>
LA2 turns ON approx. 350 msec. after PC Drum Drive Motor M5 has been energized (p. M-26).

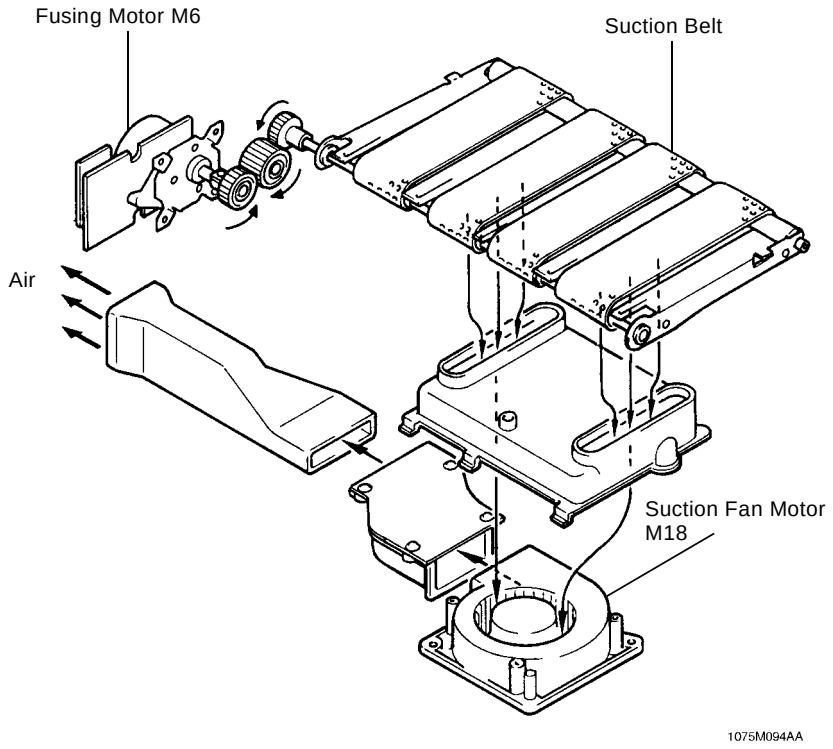
<LA2 OFF Timing>
LA2 turns OFF approx. 1,250 msec. after Scanner Control Processor Board PWB-J has output a SCEND signal.


PWB-A
IC4A
BPB5
93
IC12A
4
13
R143A
R92A
DC24V
Q22A
PJ4A
CN43
CN44
LA2
IC5A
APB0
56
1
2
3
R120A
DC24V
C39A
R121A
C38A
R122A
GND
LA2:ON
0V
1075C19MAA

20 TRANSPORT SECTION

20-1. Transport Section

- Rotation of Suction Fan Motor M18 results in the paper separated from the PC Drum being drawn onto the turning Suction Belts. As a result, the paper is smoothly carried to the Fusing Unit.
- The Suction Belts are turned by the Suction Belt Drive Roller which is driven by Fusing Motor M6. (For the timing at which M6 is energized and deenergized, see p. M-168.)
- Four rubber belts are used as the Suction Belts. There are small holes in each belt to enhance the drawing power of M18. Further, each belt has a rough surface which prevents slippage during paper transport.



20-2. Suction Fan Motor M18 Control

Suction Fan Motor M18 turns at either half or full speed, selected by the signal output from pin 49 of IC5A on Master Board PWB-A. It is controlled at the following timings.

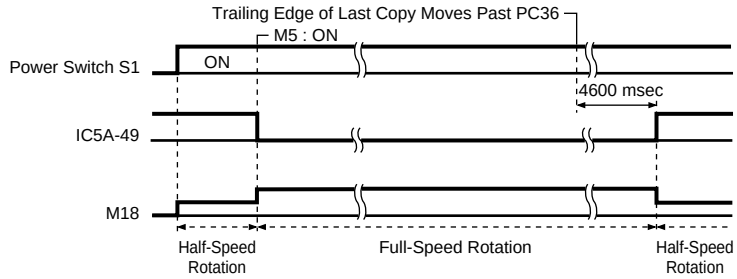
<M18 Half Speed Rotation Timing>

- At the same time when Power Switch S1 is turned ON, M18 turns at half speed.
- The speed of M18 rotation is switched from full to half approx. 4,600 msec. after the trailing edge of the last copy has moved past Paper Exit Sensor PC36.

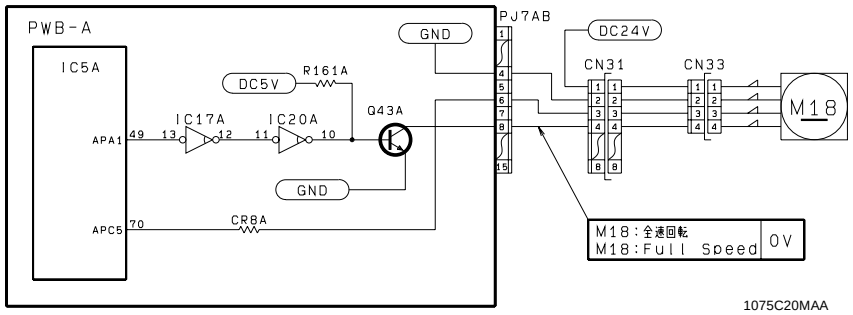
<M18 Full Speed Rotation Timing>

- The speed of M18 rotation is switched from half to full at the same time when PC Drum Drive Motor M5 is energized (p. M-XX).

= Timing Chart =



1075T101CB

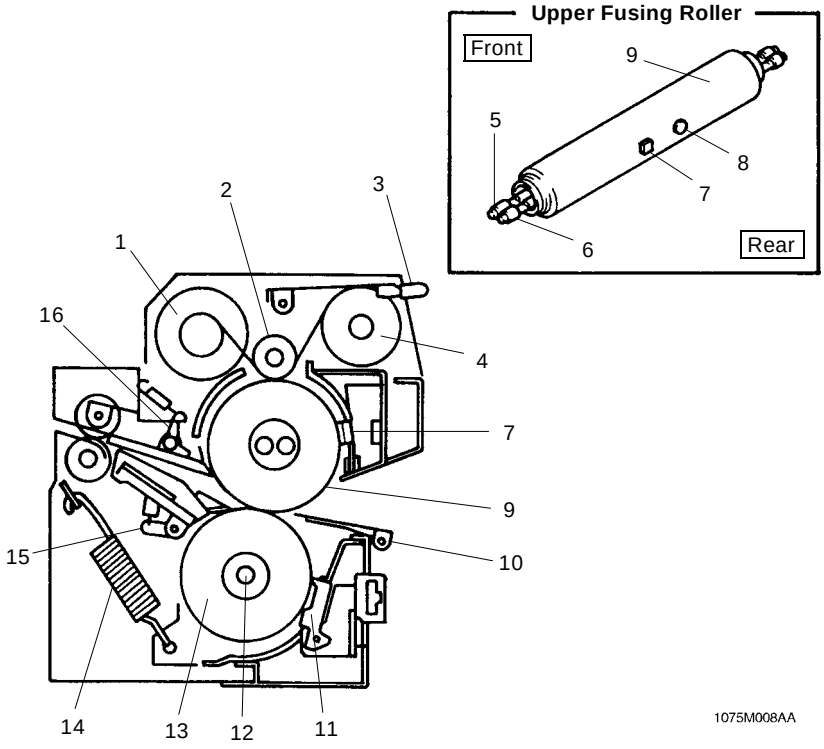


1075C20MAA

21 FUSING UNIT

- The Fusing Unit functions to fix permanently the developed image to the paper by applying heat to the toner and paper. A given pressure is also applied between the Upper and Lower Fusing Rollers, thereby providing a certain width of area of contact between the two rollers. This offers a longer fusing time and, at the same time, helps toner to be fused into the paper easily.
- The Upper Fusing Roller is provided with two heater lamps - Main Heater Lamp H1 and Sub Heater Lamp H2. This enables a warming-up time of less than 5 min (at an ambient temperature of 20°C and with rated power).
- The Lower Fusing Roller is also provided with a heater lamp (H3) which heats the roller from the inside to ensure stabilized fusing performance. It also minimizes wrinkles and skewed feed that would occur due to variations in the rollers surface temperature during the early period after the power has been turned ON.
- A wear-resistant coating has been applied to the surface of the Upper Fusing Roller that also neutralizes any charges.

21-1. Construction



	Part Name	Symbol	Function
1	Web Take-Up Roller		Takes up the Cleaning Web being supplied from the Web Roller.
2	Oil Supply/Web Feeding Roller		Presses the Cleaning Web down onto the surface of the Upper Fusing Roller and feeds the Cleaning Web as it is taken up by the Web Take-Up Roller.
3	Web Regulating Plate		Held tightly up against the Web Roller to prevent the Cleaning Web from developing slack as it is being fed out. It also provides a gauge to visually determine the approximate amount of Cleaning Web still available for use.
4	Web Roller		The Cleaning Web into which silicone oil has been soaked is fed off this roller to coat the Upper Fusing Roller with silicone oil and to clean it.
5	Upper Fusing Roller Sub Heater Lamp	H2	Turns ON during the warming-up period.
6	Upper Fusing Roller Main Heater Lamp	H1	Turns ON during the warming-up period, a copy cycle, and in the standby state following the completion of warming-up (to constantly provide temperature control).
7	Upper Fusing Roller Thermistor	TH1	Detects the surface temperature of the Upper Fusing Roller.
8	Fusing Roller Thermal Fuse	TF2	Blows out when the Upper Fusing Roller temperature runs excessively high to prevent a fire.
9	Upper Fusing Roller		Fixes the developed image to the paper and, at the same time, feeds the paper onto the Exit Section.
10	Fusing Unit Entrance Guide Plate		Serves as a guide for the paper being fed into the Fusing Unit.
11	Lower Fusing Roller Thermistor	TH2	Detects the surface temperature of the Lower Fusing Roller.
12	Lower Fusing Roller Heater Lamp	H3	Turns ON in the standby state following the completion of warming-up.
13	Lower Fusing Roller		Made up of a silicone rubber cylinder covered with teflon tubing and functions with the Upper Fusing Roller to fix the developed image to the paper.
14	Fusing Roller Pressure Spring		Presses the Lower Fusing Roller up against the Upper Fusing Roller.
15	Lower Paper Separator Fingers		Strip the paper from the surface of the Lower Fusing Roller.
16	Upper Paper Separator Fingers		Strip the paper from the surface of the Upper Fusing Roller.

21-2. Fusing Rollers and Web Roller

<Upper Fusing Roller>

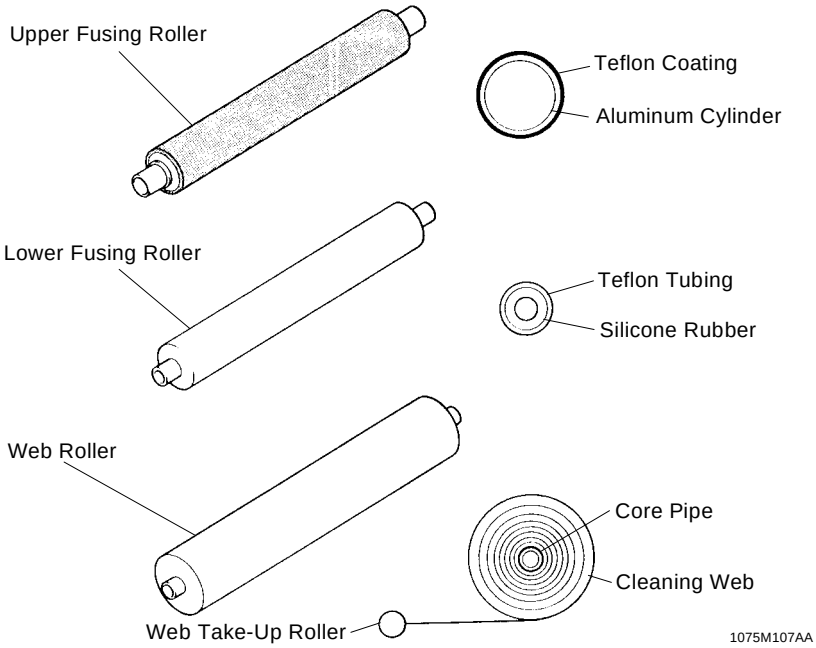
- A teflon-coated roller is used, which makes for improved fusing performance and a reduced consumption of silicone oil. In addition, it stands up well to high temperature and repels the adherence of melted toner. It is so hard that it is resistant to wear and damage. This ensures a longer life.
- A conductive coating has been applied to the surface of the Upper Fusing Roller, which neutralizes any charges and helps prevent the production of offsets.
- Further, silicone oil is supplied to the Upper Fusing Roller from the Web Roller. This also prevents the production of offsets. The roller requires only a minimum amount of silicone oil.

<Lower Fusing Roller>

- An elastic silicone rubber is used for the Lower Fusing Roller, offering a wider area of contact between the two rollers.
- The silicone rubber is covered with a teflon tubing. This contributes to preventing smear on the roller and, at the same time, reduces the amount of silicone oil necessary for cleaning.

<Web Roller>

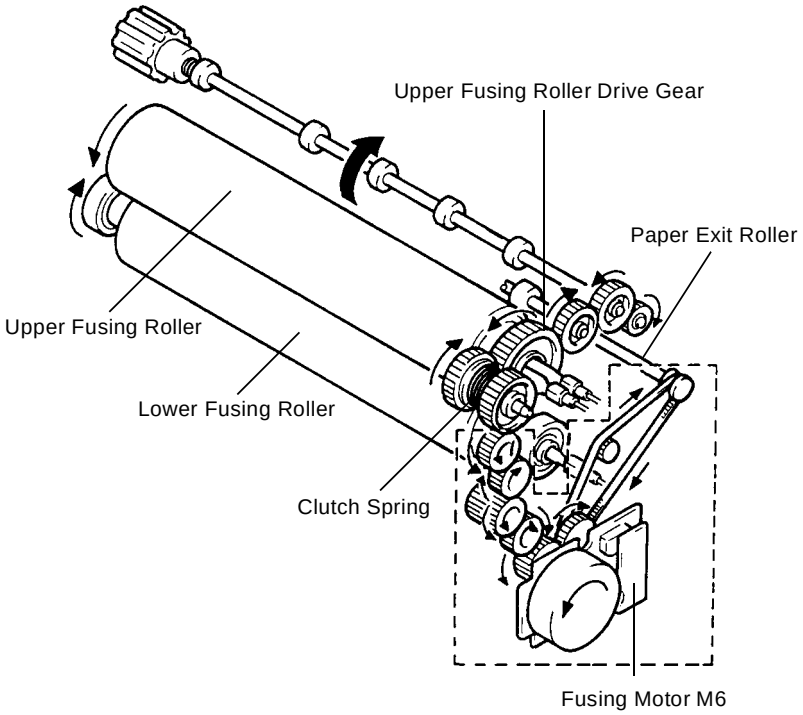
- The Web Roller consists of a core pipe around which the Cleaning Web impregnated with silicone oil is wound.
- The Cleaning Web is fed off the Web Roller so that silicone oil is applied to the surface of the Upper Fusing Roller. At the same time, this cleans the surface of the Upper Fusing Roller.



21-3. Drive for the Fusing Unit

- The Fusing Unit is driven by Fusing Motor M6 fitted to the Fusing Drive Unit in the rear of the copier. (M6 is fitted to the copier frame, not to the Fusing Unit.)

*The illustration shows the unit viewed from the rear of the copier.



The gears enclosed by ⬚ are on the copier frame.

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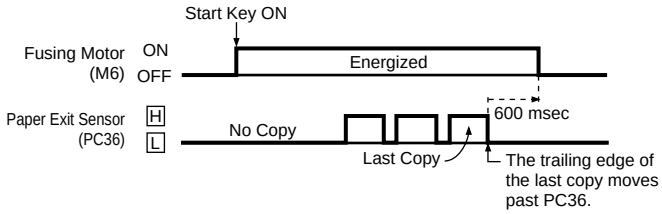
◆ **Fusing Motor M6 Control**

- M6 is energized at the same time when the Start Key is pressed and deenergized approx. 600 msec. after the trailing edge of the last copy has deactivated Paper Exit Sensor PC36. (The Start Key should be pressed when the copier is ready to make copies after having completed warming up.)



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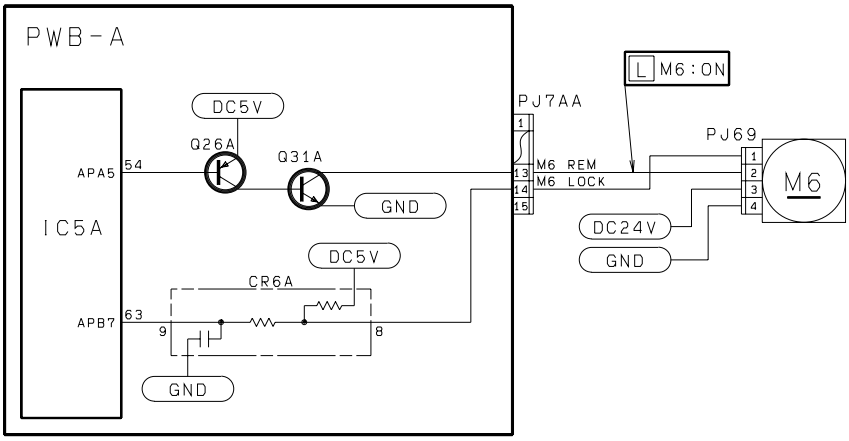
- M6 is energized when a LOW M6 Remote signal is output from pin 13 of PJ7A on Master Board PWB-A.



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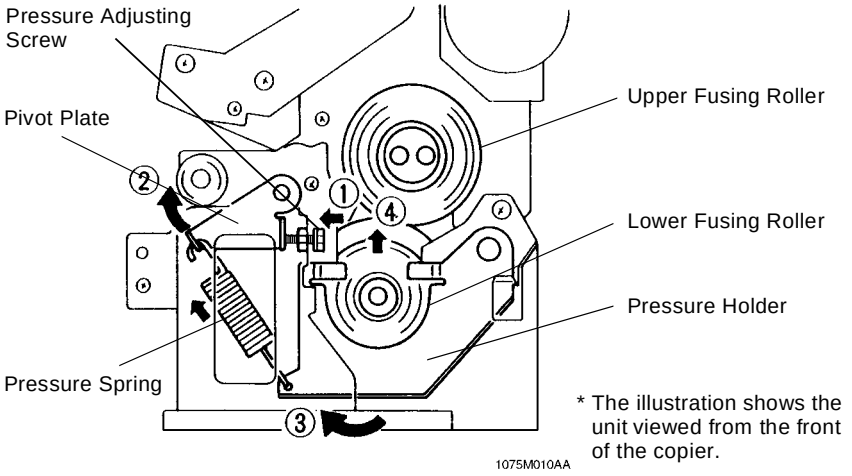
21-4. Fusing Rollers Pressure Mechanism

- To ensure that there is a certain width of area of contact between the Upper and Lower Fusing Rollers, a pressure spring is installed to each of the front and rear Pressure Holders.
- The Lower Fusing Roller is held pressed against the Upper Fusing Roller at all times. It is released only when servicing the copier. Pressure can be adjusted with the Pressure Adjusting Screws at the front and rear. (The copier is shipped with the Lower Fusing Roller released from the Upper Fusing Roller.)
- The pressure between the two rollers is approx. 100 kg which reached when the Pressure Adjusting Screws are fully tightened. (To release the Lower Fusing Roller, therefore, you have only to loosen these screws.)
- As the screws are tightened [arrow←①], the Pivot Plates are moved in the direction of arrow←②, pulling the Pressure Springs. Then, the Pressure Holders are moved in the direction of arrow←③, thus pressing the Lower Fusing Roller up [arrow←④] against the Upper Fusing Roller. (The mechanisms are identical in the rear.)



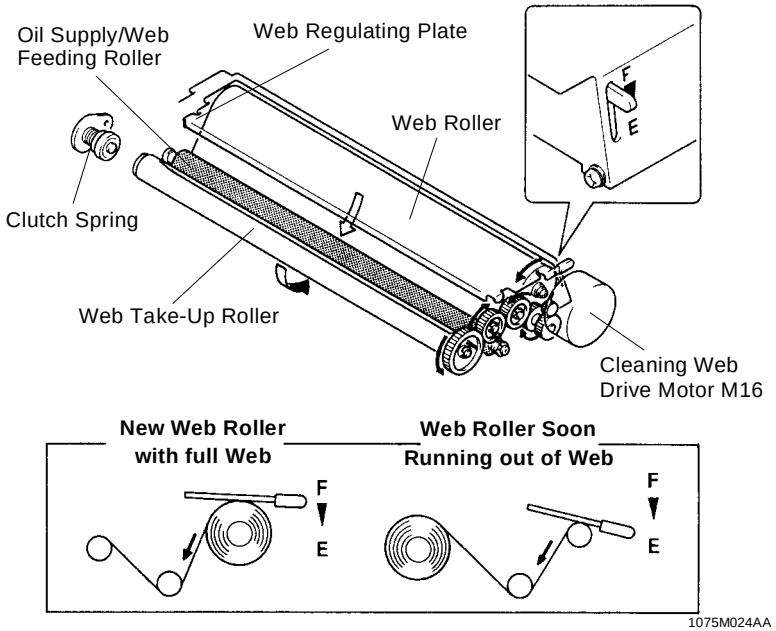
* The illustration shows the unit viewed from the front of the copier.

21-5. Oil Application Mechanism

- The silicone oil is applied to the surface of the Upper Fusing Roller when the Cleaning Web being fed off the Web Roller is pressed tightly up against the Upper Fusing Roller by the Oil Supply/Web Feeding Roller. The surface of the Upper Fusing Roller is cleaned at the same time when silicone oil is applied to it.
- The silicone oil is then transferred onto the Lower Fusing Roller. The oil prevents copies having offsets from being produced and helps the paper be stripped off the surface of the Upper or Lower Fusing Roller.
- The Oil Supply/Web Feeding Roller is made of foam rubber and is thus elastic. This provides a wider width of area of contact between this roller and the Upper Fusing Roller, enhancing cleaning and oil application efficiency. This roller also functions to feed the Cleaning Web as it is being taken up by the Web Take-Up Roller.

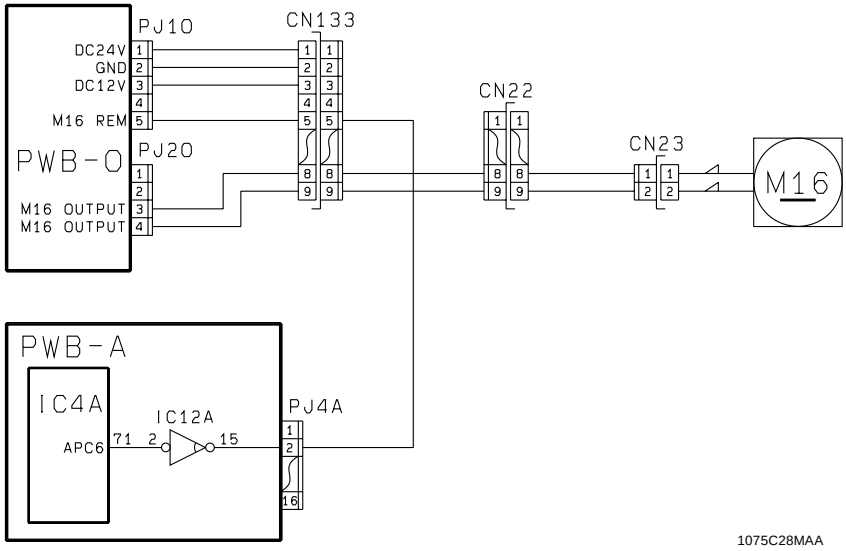
21-6. Cleaning Web Take-Up Mechanism/Control

- The Cleaning Web wound around the Web Roller is taken up by the Web Take-Up Roller which is driven by Cleaning Web Drive Motor M16.
- M16 is turned about one turn in every ten copy cycles.
  * The length of the Cleaning Web taken up per one revolution of M16 varies depending on the amount of Cleaning Web which has already been taken up. That is, in the beginnings of a new roll of Cleaning Web, a shorter length of web is taken up per one revolution of M16, as there is a very little amount of web taken up by the Web Take-Up Roller. (This is self-explanatory when you imagine how small the diameter of the Web Take-Up Roller with a web wound around it is.) The more the web is taken up, the longer the length of web taken up.
- The Web Take-Up Roller Shaft is provided with a Clutch Spring that prevents the roller from turning backward, thereby preventing the Cleaning Web from developing slack or wrinkling during take-up.
- On the right side at the front of the Fusing Unit, there is a gauge provided showing an approximate amount of Cleaning Web still available for use. It eliminates the need of removing the Cleaning Web Assy to check for the amount of web. The replacement time of the Cleaning Web may also be known using the Tech. Rep. mode. ("Tech. Rep. Mode Menu" → "Counter" → "Consumables" → the count of "Web Roller")
  When the count of Web Roller reaches the setting (replacement cycle 200K), the copier gives the maintenance call message on the Touch Panel. If copy cycles are run after the message has appeared and when 10,000 additional copies have been made, the copier inhibits the initiation of a new copy cycle. (For details, see SWITCHES ON PWBs.)



◆ **Cleaning Web Drive Motor M16 Control**

- Cleaning Web Drive Motor M16 is energized by a LOW M16 Remote signal output from pin 2 of PJ4A on Master Board PWB-A, which occurs each time when five copies have been made.
- The LOW M16 Remote signal output from pin 2 of PJ4A is input to pin 5 of PJ10 on M14/M16 Drive Board PWB-O. Then, power (ac converted from dc) is supplied from pins 3 and 4 of PJ20 on PWB-O to M16, turning M16 about one turn.



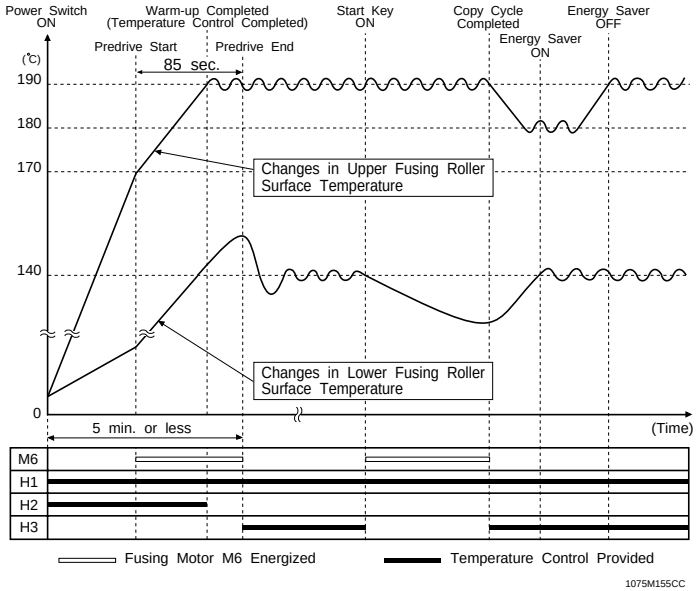
21-7. Fusing Temperature Control

- The Fusing Unit is provided with three heater lamps, each turning ON to provide fusing temperature control at a particular timing so that power consumption can be minimized.

Part Name	Symbol	Function	Controlled Temperature
Upper Fusing Roller Main Heater Lamp	H1	Turns ON during the warming-up cycle, a copy cycle, and in the standby state following the completion of warm-up. (The lamp provides temperature control at all times.)	190°C
Upper Fusing Roller Sub Heater Lamp	H2	Turns ON during the warming-up cycle.	
Lower Fusing Roller Heater Lamp	H3	Turns ON in the standby state following the completion of warm-up.	140°C

* The temperature is controlled at 180°C during the Energy Saver mode. Only H1 is turned ON to increase the temperature after the Energy Saver mode.
* "Temperature control" refers to the process of turning ON and OFF the heater lamps to arrive at a predetermined temperature.
* "Temperature control completed" means the predetermined temperature has been reached.

◆ **Example:** The copier is turned ON when the Upper and Lower Fusing Rollers remain cool in the morning and a copy cycle is run following the completion of warm-up.



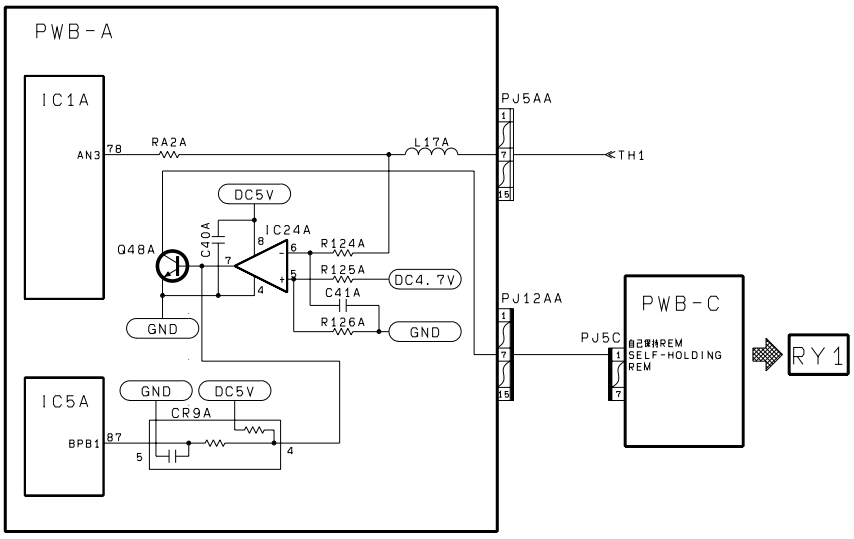
<Temperature Control>

- Upper Fusing Roller Thermistor TH1 and Lower Fusing Roller Thermistor TH2 detect the surface temperatures of the corresponding rollers. They provide analog voltage inputs to pin 7 of PJ5A (TH1) and pin 3 of PJ5A (TH2) on Master Board PWB-A, respectively. This controls the fusing temperature.
- H1 is turned ON or OFF by the Remote signal output from pin 3 of PJ7AA on PWB-A.
- H2 is turned ON or OFF by the Remote signal output from pin 2 of PJ7AA on PWB-A.
- H3 is turned ON or OFF by the Remote signal output from pin 1 of PJ7AA on PWB-A.

Temperature °C	Upper Fusing Roller Thermistor TH1					Lower Fusing Roller Thermistor TH2		
	170	180	190	200	220	130	140	150
Analog Output Voltage (V)	Approx. 2.12	Approx. 1.82	Approx. 1.57	Approx. 1.35	Approx. 0.96	Approx. 1.64	Approx. 1.37	Approx. 1.13

Detection of an Abnormally High Temperature

When TH1 detects an abnormally high temperature (220°C or higher), the output from IC24 on PWB-A goes from LOW to HIGH causing the Self-Holding signal to PJ5C on DC Power Supply Board PWB-C to go LOW, which turns OFF RY1. This cuts off power to the heater lamps, turning them OFF.



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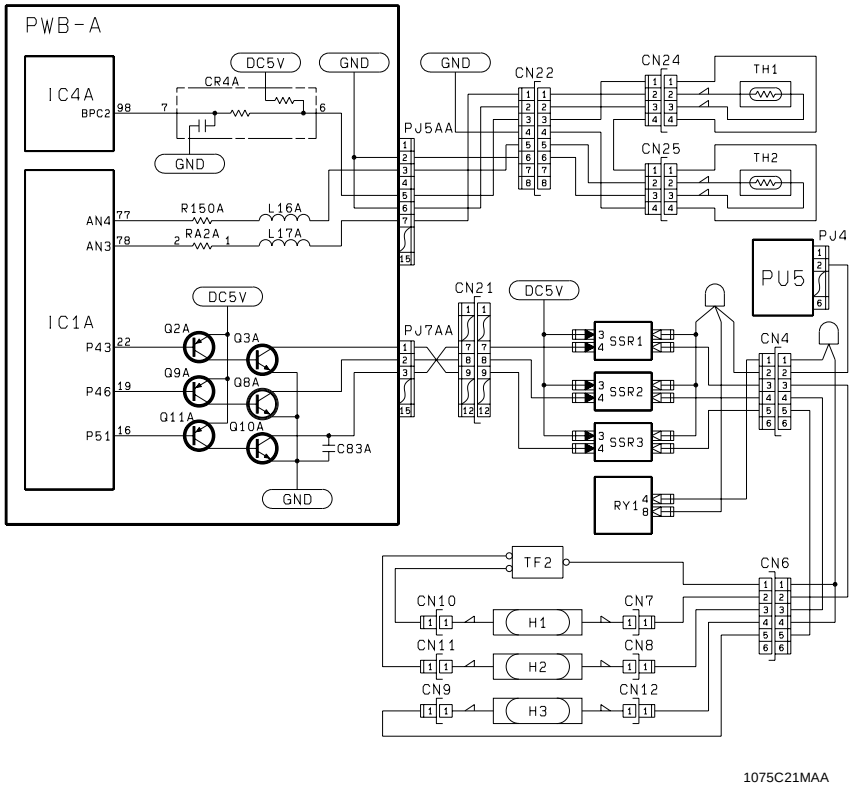
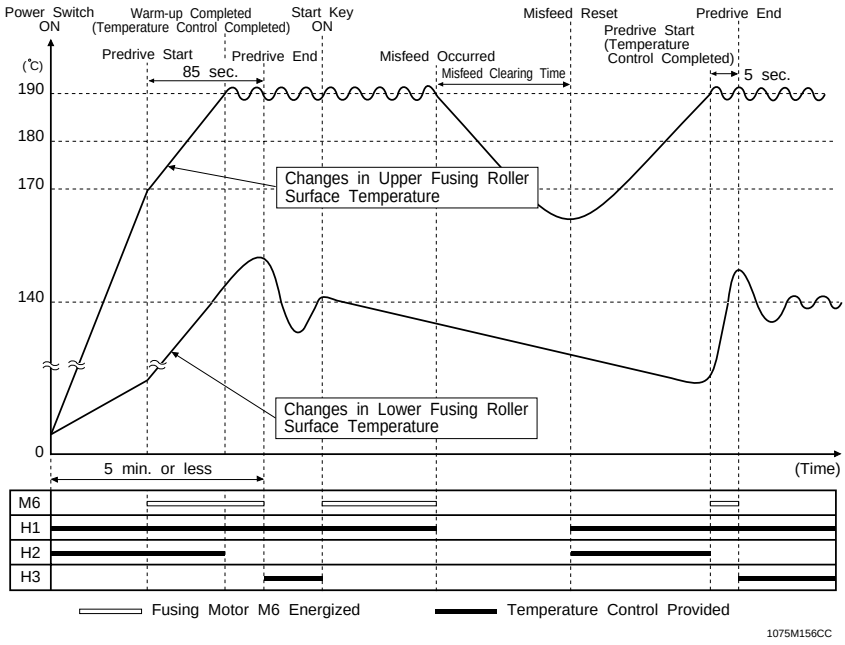

PWB-A
IC4A
BPC2
98
7
6
CR4A
DC5V
GND
GND
GND
IC1A
AN4
77
AN3
78
R150A
L16A
RA2A
L17A
2
1
P43
22
P46
19
P51
16
Q2A
Q3A
Q9A
Q8A
Q11A
Q10A
C83A
DC5V
GND
PJ5AA
CN22
CN24
CN25
TH1
TH2
PJ7AA
CN21
DC5V
SSR1
SSR2
SSR3
RY1
PU5
PJ4
CN4
TF2
CN6
CN10
CN7
H1
CN11
CN8
H2
CN9
CN12
H3
1075C21MAA

<Predrive Control>

- Predrive is controlled in three different ways depending on the surface temperatures of the Upper and Lower Fusing Rollers. This is done to save downtime for clearing of misfeeds and other troubles.

	Fusing Roller Condition	Surface Temperature of Upper/Lower Fusing Roller	Predrive
1	Cool	The surface temperature of the Upper Fusing Roller is 170°C or less.	Predrive for 85 sec. when the Upper Fusing Roller is 170°C
2	Heated ①	The surface temperature of the Upper Fusing Roller is 170°C or higher and the temperature difference between the two rollers is 120°C or more.	Predrive for 40 sec. when the Upper Fusing Roller is 180°C
3	Heated ②	The surface temperature of the Upper Fusing Roller is 170°C or higher and the temperature difference between the two rollers is less than 120°C.	Predrive for 5 sec. when the Upper Fusing Roller is 190°C.

◆ **Example:** The copier is turned ON when the Upper and Lower Fusing Rollers remain cool in the morning and a copy cycle is run following the completion of warm-up. During the copy cycle, a misfeed occurs and is cleared, which is followed by predrive. At this time, the Fusing Rollers are in the condition of heated ②.



21-8. CPM Control

- The CPM (copies/minute) control is provided to keep good fusing performance even in multi-copy cycles and with the system power sourced from a single power outlet.

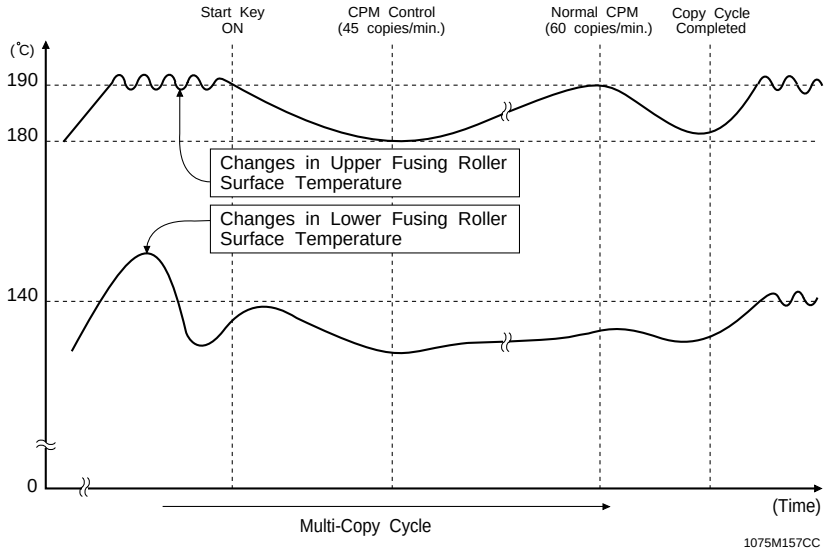
<What is CPM Control?>

- As we noted earlier, only Upper Fusing Roller Main Heater Lamp H1 is ON during a copy cycle. Because of that, the Fusing Roller surface temperatures go down in a multi-copy cycle, resulting in degraded fusing performance. The copier therefore estimates the fusing performance based on the Fusing Roller surface temperature and, when the fusing performance is considered to be degraded, it decreases the CPM by 25% in an attempt to recover good fusing performance.
  (When the CPM is decreased, it provides a greater interval between sheets of paper, which helps increase the Fusing Roller surface temperature. This recovers the fusing performance. When good fusing performance is recovered, the copier resumes the normal CPM.)

<CPM Control>

- When the normal CPM is 60 copies/min., for example, and when the copier determines that fusing performance has been degraded, it reduces the CPM by 25% to 45 copies/min.
- During the CPM control, the copier provides a greater interval between scan motions and between sheets of paper, thereby increasing the Fusing Roller temperature. (The system speed is not varied.)
- The CPM control can be activated if a multi-copy cycle is run immediately after the power has been turned ON in the morning (when the Fusing Rollers remain cool). In this condition, only the surface of the Lower Fusing Roller is heated by the heat which comes from the Upper Fusing Roller. If multiple copies are made in such a condition, the CPM control is activated. Since the inside of the Lower Fusing Roller remains cool, it tries to take more heat from the Upper Fusing Roller, thus decreasing the temperature of the Upper Fusing Roller. In times other than early morning, however, the Lower Fusing Roller is heated by Lower Fusing Roller Heater Lamp H3 from the inside and, even with a multi-copy cycle, the CPM control is not readily activated. (For paper with a large weight and size, however, the CPM control can be activated even at times other than early morning.)

◆ **Multi-Copy Cycle Immediately After Warm-up in Early Morning (normal CPM: 60)**

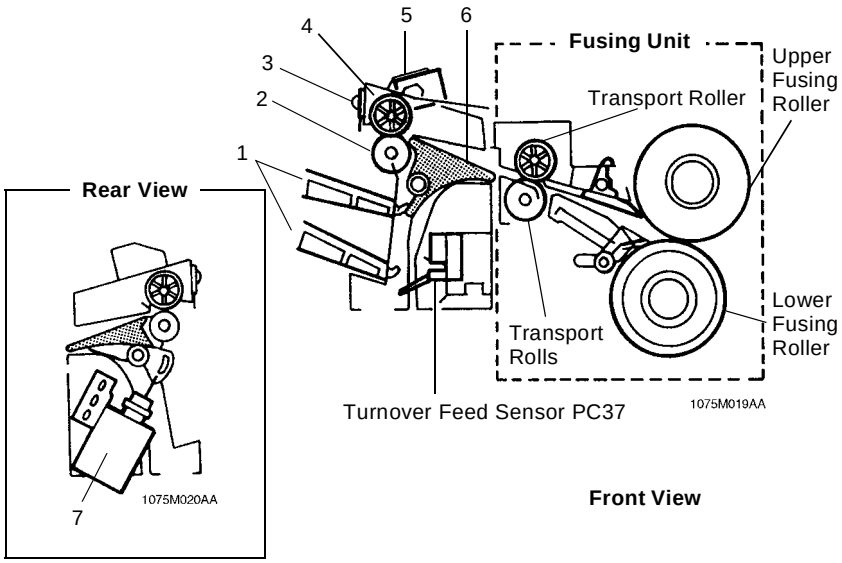


22 EXIT/DUPLEX SWITCHING UNIT

22-1. Construction

- The Exit/Duplex Switching Unit functions to switch the paper path to feed the copy:

① Out onto the Exit Tray; or,
② Down into the Duplex Unit.

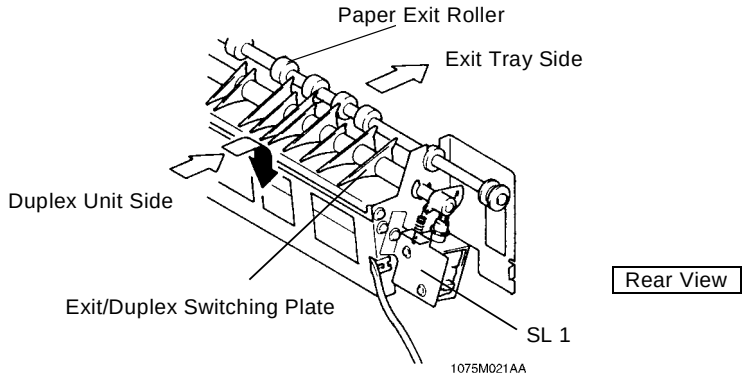


	Part Name	Symbol	Function
1	Exit Tray		Receives the copy fed out of the copier.
2	Paper Exit Roller		Feeds the copy out onto the Exit Tray.
3	Charge Neutralizing Brush		Neutralizes the copy being fed out onto the Exit Tray.
4	Paper Exit Rolls		Feed the copy out onto the Exit Tray.
5	Paper Exit Sensor	PC36	Detects a sheet of paper being fed out of the copier.
6	Exit/Duplex Switching Plate		Directs the copy transported from the Fusing Unit toward the Exit Tray or Duplex Unit.
7	Exit/Duplex Switching Solenoid	SL1	Operates the Exit/Duplex Switching Plate as required.

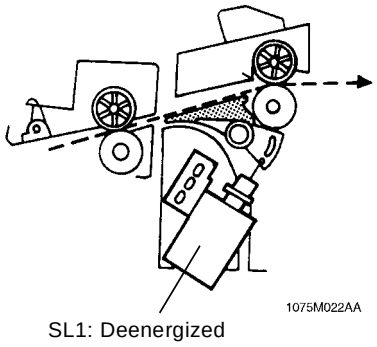
22-2. Exit/Duplex Switching Mechanism/Control

<Overview>

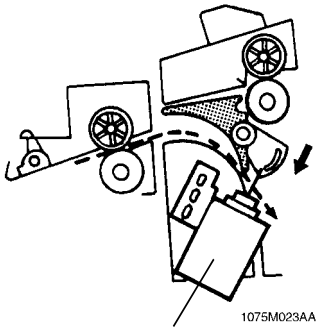
- Exit/Duplex Switching Solenoid SL1 is energized or deenergized to operate the Exit/Duplex Switching Plate so that the copy is fed either out onto the Exit Tray or down into the Duplex Unit.



<SL1 is Deenergized: Feeding Copy onto Exit Tray>



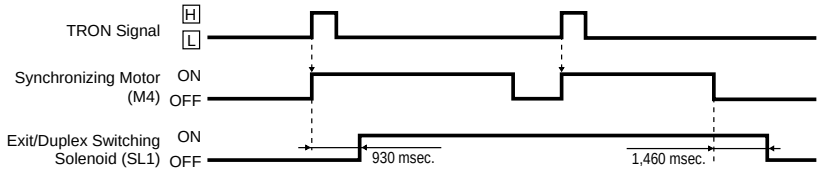
<SL1 is Energized: Feeding Copy into Duplex Unit>



Rear View

<Control>

- SL1 is energized and deenergized by the signal output from pin 1 of PJ6A on Master Board PWB-A.
- The Exit/Duplex Switching Plate is operated at the following timings.



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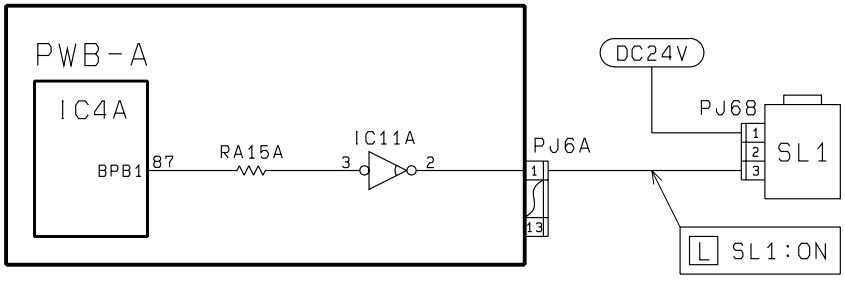

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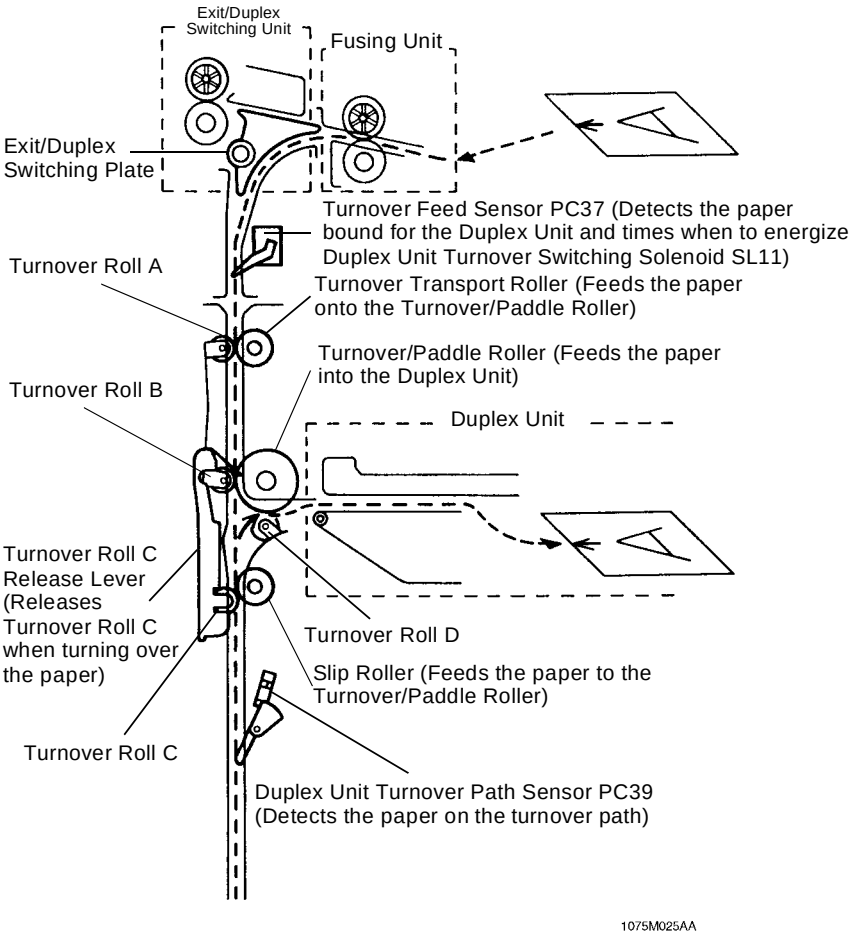
23 DUPLEX UNIT TURNOVER MECHANISM

- The turnover mechanism of the Duplex Unit reverses the copy fed from the Exit/Duplex Switching Unit and feeds it into the Duplex Unit, the trailing edge of the copy first.

23-1. Construction


Exit/Duplex Switching Unit
Fusing Unit
Exit/Duplex Switching Plate
Turnover Feed Sensor PC37 (Detects the paper bound for the Duplex Unit and times when to energize Duplex Unit Turnover Switching Solenoid SL11)
Turnover Roll A
Turnover Transport Roller (Feeds the paper onto the Turnover/Paddle Roller)
Turnover/Paddle Roller (Feeds the paper into the Duplex Unit)
Turnover Roll B
Duplex Unit
Turnover Roll C Release Lever (Releases Turnover Roll C when turning over the paper)
Turnover Roll D
Slip Roller (Feeds the paper to the Turnover/Paddle Roller)
Turnover Roll C
Duplex Unit Turnover Path Sensor PC39 (Detects the paper on the turnover path)
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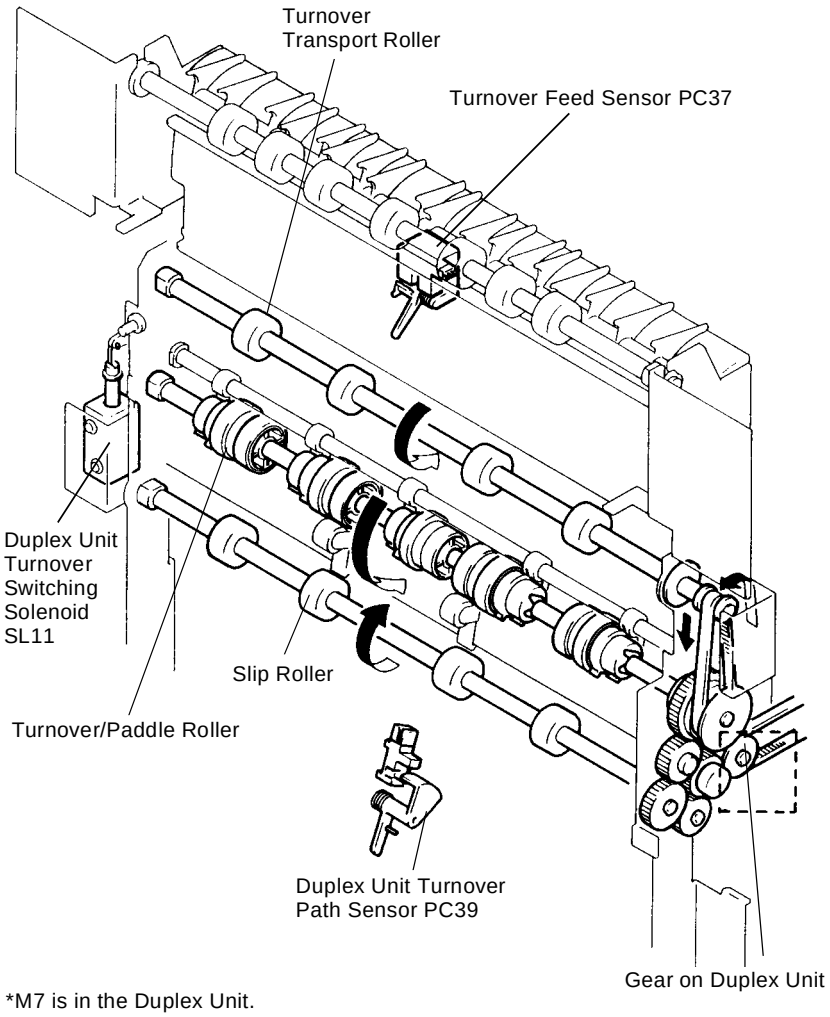
23-2. Drive Mechanism

- Duplex Unit Drive Motor M7 gives drive to each roller of the turnover mechanism.



*M7 is in the Duplex Unit.

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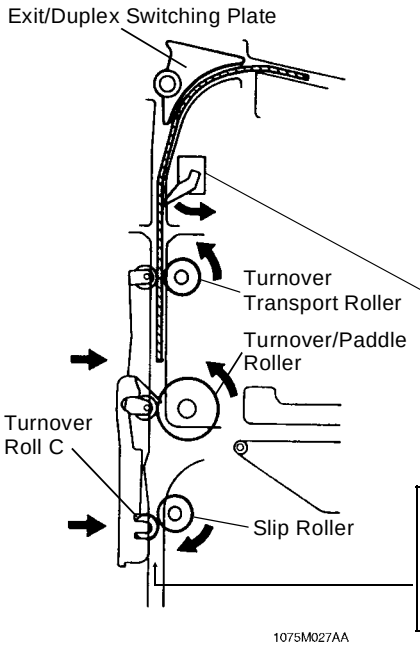
23-3. Duplex Unit Turnover Mechanism

• The paper is turned over as follows.

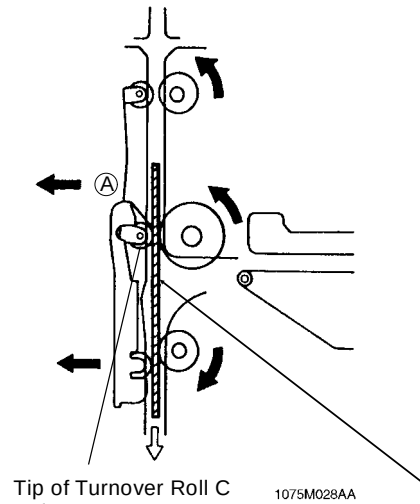


1) The paper from the Fusing Unit is directed down toward the turnover mechanism by the Exit/Duplex Switching Plate.
   * The leading edge of the paper blocks (L) Turnover Feed Sensor PC37.
2) The Turnover Transport Roller is driven to feed the paper to the Turnover/Paddle Roller.

PC37

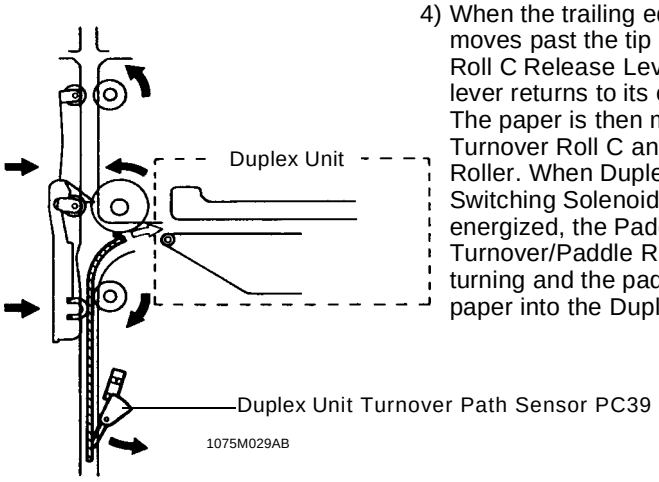
Paper present: Blocked (L)
Paper not present: Unblocked (H)

In this condition, Turnover Roll C is pressed against the Slip Roller. (Turnover Roll C is integrated with the Turnover Roll C Release Lever as an assembly.)



3) When the leading edge of the paper reaches the tip of the Turnover Roll C Release Lever, the paper pushes the release lever in the direction of arrow Ⓐ , thus releasing Turnover Roll C from the Slip Roller. As a result, the Slip Roller can no longer transport the paper upward, allowing the paper to move downward.
   * The Turnover Roller of the Turnover/Paddle Roller is driven to feed the paper to the Slip Roller.

In this condition, Turnover Roll C is not pressed against the Slip Roller (with a gap between them).

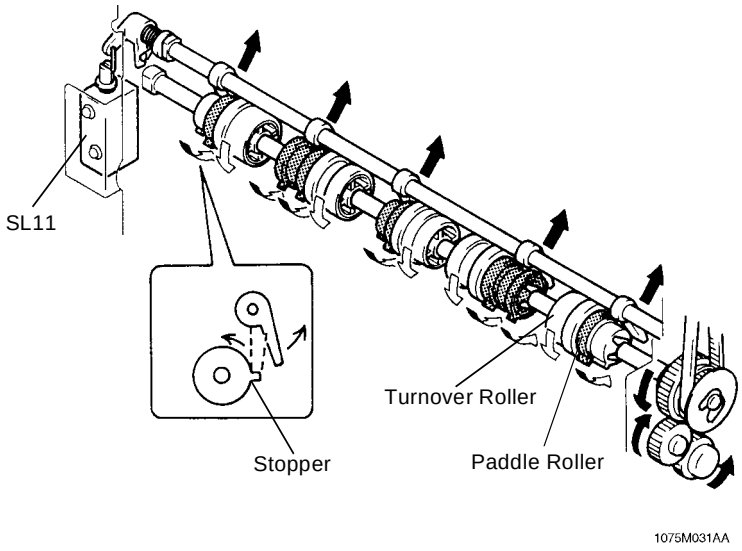


4) When the trailing edge of the paper moves past the tip of the Turnover Roll C Release Lever, the release lever returns to its original position. The paper is then moved up by Turnover Roll C and the Slip Roller. When Duplex Unit Turnover Switching Solenoid SL11 is energized, the Paddle Roller of the Turnover/Paddle Roller starts turning and the paddles feed the paper into the Duplex Unit.

◆ **Turnover/Paddle Roller Mechanism/Control**

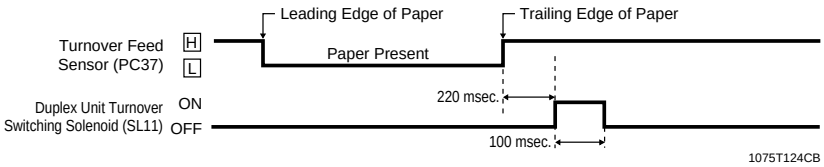
<Mechanism>

- The Turnover Roller of the Turnover/Paddle Roller turns whenever Duplex Unit Drive Motor M7 remains energized (as indicated by ⟹ below). The Paddle Roller of the Turnover/Paddle Roller, on the other hand, turns one complete turn (as indicated by ➞ below) when the stoppers are disengaged, which occurs when Duplex Unit Turnover Switching Solenoid SL11 is energized. These sequences of operation are performed for each copy, thereby feeding the copy into the Duplex Unit.

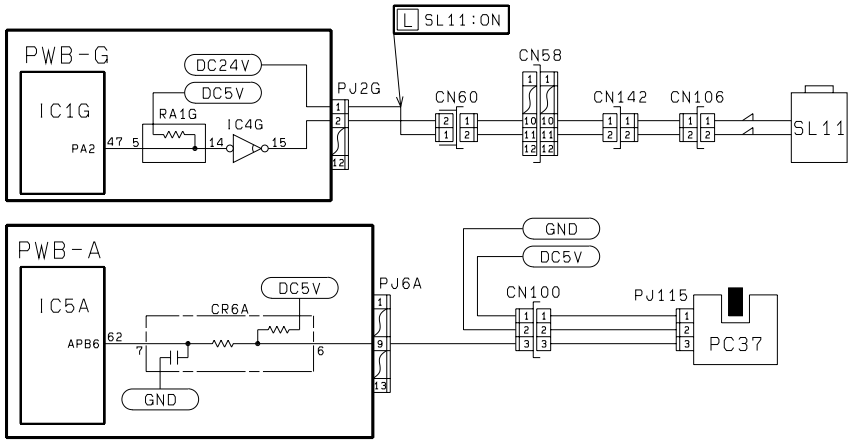


<Control>

- SL11 is energized 300 msec. after Turnover Feed Sensor PC37 has gone from LOW to HIGH as the trailing edge of the paper moves past it. The solenoid remains energized for 100 msec.



- SL11 is energized and deenergized by the signal output from pin 2 of PJ6A on Duplex Unit S/P Board PWB-G.



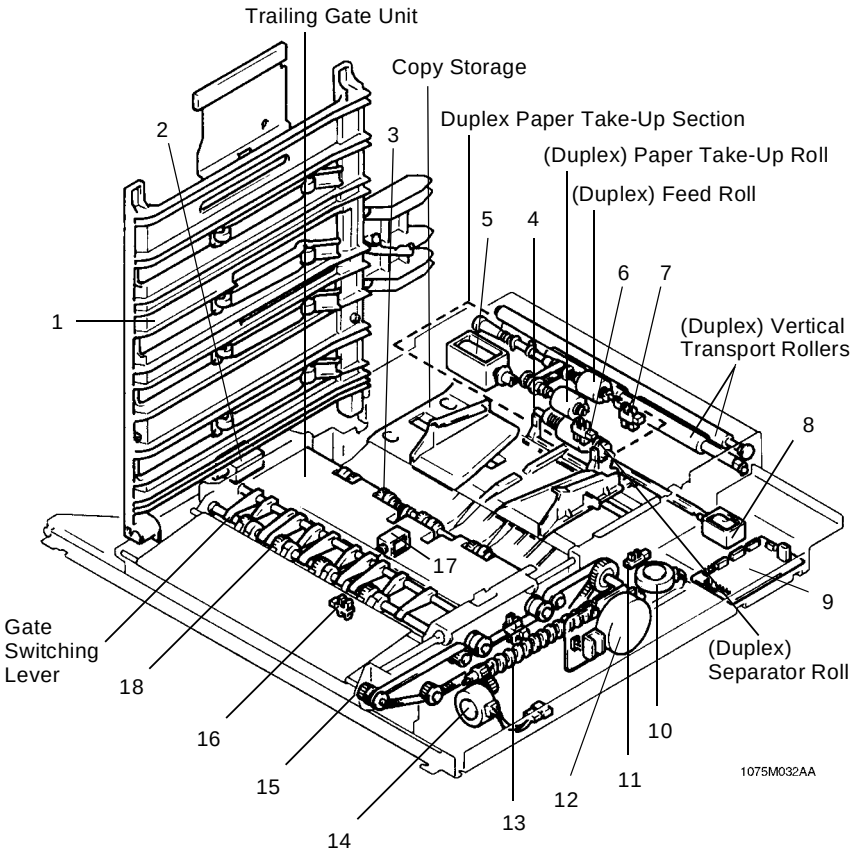
24 DUPLEX UNIT

- The size of the paper that can be stored in the Duplex Unit is as follows.

  Metric areas ... A5 lengthwise (148 mm × 210 mm) to A3 lengthwise (297 mm × 420 mm)
  Inch areas ..... 5-1/2" × 8-1/2" to 11" × 17"

- The Duplex Unit can store up to 50 sheets of Minolta-recommended paper weighing 60 g/m^2. It can also store thick paper weighing 60 to 157 g/m^2.

24-1. Construction



	Part Name	Symbol	Function
1	Upper Guide Plate Assy		Serves as a top guide for the paper being fed into the Duplex Unit.
2	Duplex Unit Gate Switching Solenoid	SL2	Operates the Gate Switching Lever. When the paper length exceeds 297 mm, the solenoid is energized to allow the paper through Gate 2 into the Copy Storage.
3	Gate 1 Transport Roller		Feeds the 297-mm-or-shorter paper into the Copy Storage.
4	Leading Edge Guide Plate		Stops the leading edge of the paper being fed into the Copy Storage to align it with that of other copies already stored.
5	Duplex Unit Pick-Up Solenoid	SL4	Energized to start a paper take-up sequence.
6	Duplex Unit Paper Empty Sensor	PC41	Detects a sheet of paper in the Copy Storage.
7	Duplex Unit Paper Take-Up Sensor	PC40	Detects whether or not a sheet of paper has been taken up from the Copy Storage.
8	Duplex Unit Leading Edge Solenoid	SL5	Energized to lower the Leading Edge Guide Plate so that a sheet of paper can be taken up from the Copy Storage.
9	Duplex Unit S/P Board	PWB-G	Controls the motors and other components of the Duplex Unit.
10	Duplex Unit Front/Rear Edge Guide Drive Motor	M10	Moves the Front and Rear Edge Guide Plates to the exact width of the paper being stored in the Copy Storage.
11	Duplex Unit Front/Rear Edge Guide Plate Home Position Sensor	PC42	Detects the Front/Rear Edge Guide Plate at the home position, with reference to which the guide plates are moved to the width of the paper.
12	Duplex Unit Drive Motor	M7	Drives the turnover mechanism of the Duplex Unit.
13	Duplex Unit Gate Home Position Sensor	PC43	Detects the Trailing Gate Unit at the home position, with reference to which the unit is moved according to the length of the paper being fed into the Copy Storage.
14	Duplex Unit Gate Motor	M9	Moves the Trailing Gate Unit to a position according to the length of the paper being fed into the Copy Storage.
15	Turnover Mechanism Drive Gear		Transmits drive from M7 to the gear train of the turnover mechanism.
16	Duplex Unit Paper Entry Sensor	PC38	Detects a sheet of paper being fed into the Copy Storage.
17	Duplex Unit Paper Finger Solenoid	SL3	Turns the Paper Finger so that the finger presses the trailing edge of the copy or copies stored in the Copy Storage.
18	Gate 2 Transport Roller		Feeds the paper longer than 297 mm through Gate 2 into the Copy Storage.

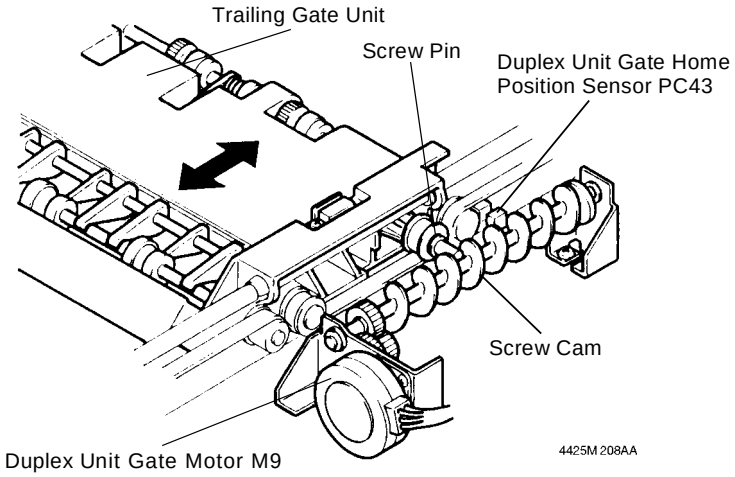
24-2. Trailing Gate Unit Moving Mechanism/Control

- The Trailing Gate Unit is moved as necessary to store paper of different sizes.
  The unit is moved as drive from Duplex Unit Gate Motor M9 is transmitted via a gear train to the Screw Cam and Screw Pin. It is moved in the direction of the arrow ↔.
- This is done to enhance the Duplex Units paper storage performance (misfeed prevention, appropriate storing sequence, etc.). It moves according to the paper length with reference to the home position detected by Duplex Unit Gate Home Position Sensor PC43 (blocked [L]).

Trailing Gate Unit Movement
Paper Length + 3 mm

- The unit moves to its home position at the following timings if there is no copy left in the Copy Storage:

  ① Power Switch S1 is turned ON.
  ② The Duplex Unit is slid into the copier.
  ③ The Lower Front Door of the copier is opened and closed.

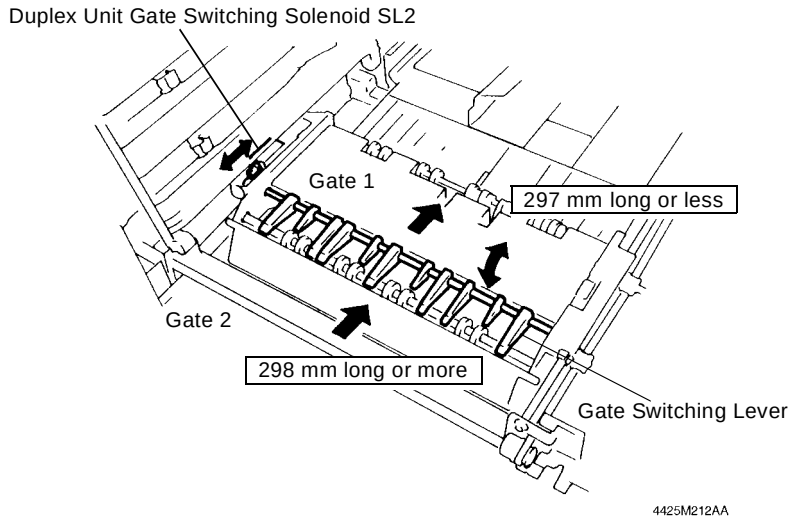


◆ **Duplex Unit Gate Motor M9 Control**

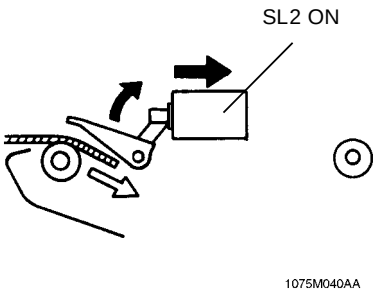
- At the same time when the Start Key is pressed, M9 is energized to move the Trailing Gate Unit to the position for the paper size selected (paper length + 3 mm).
- When the 2-sided copy mode is canceled, M9 is energized to return the Trailing Gate Unit back to the home position.
- M9 is a stepping motor and controlled by the signals output from Duplex Unit S/P Board PWB-G.
- The order of turning ON the output signals determines the turning direction of M9.

24-3. Gate Switching Mechanism/Control

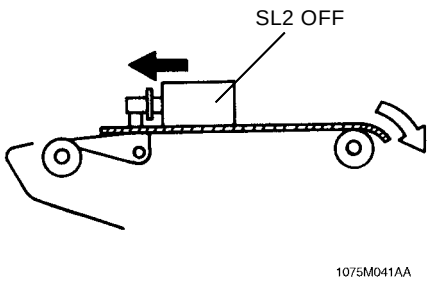
- When paper is to be stored into the Duplex Unit, the Gate Switching Lever is operated as necessary according to the paper size to select Gate 1 or Gate 2.
- The Gate Switching Lever is operated by Duplex Unit Gate Switching Solenoid SL2 which is energized or deenergized according to the paper size to select Gate 1 or Gate 2 as shown in Table 1 on the next page.
- SL2 is operated at the same time when the paper take-up sequence starts.
- When the paper to be stored is 298 mm long or more, SL2 is energized to swing open the Gate Switching Lever to allow the paper through Gate 2.
- When the paper to be stored is 297 mm long or less, SL2 is deenergized, allowing the paper through Gate 1.



298 mm long or more

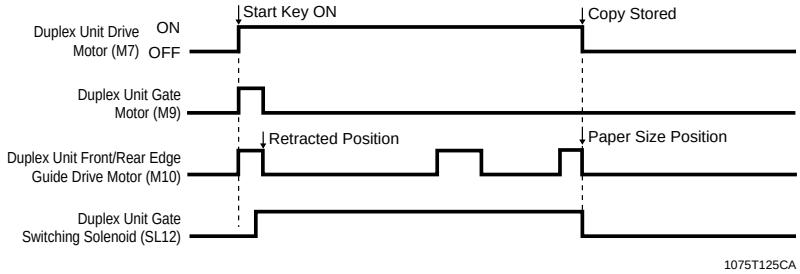


297 mm long or less



24-4. Trailing Gate Unit Moving and Gate Switching Operations

◆ **Timing Chart (A3L, 2 sheets)**



◆ **Trailing Gate Unit Travel Distance / Gate Switching Operation Table 1**

Metric Areas

Size	Paper Length (mm)	Travel Distance (mm)	Gate 1	Gate 2
B5C	182	−28	O	—
A5L	210	0	O	—
A4C	210	0	O	—
B5L	257	+47	O	—

Size	Paper Length (mm)	Travel Distance (mm)	Gate 1	Gate 2
A4L	297	+87	O	—
B4L	364	+19	—	O
A3L	420	+75	—	O

Inch Areas

Size	Paper Length (mm)	Travel Distance (mm)	Gate 1	Gate 2
10-1/2" × 8"	203.2	−7	O	—
10" × 8"	203.2	−7	O	—
5-1/2" × 8-1/2"	215.9	+6	O	—
11" × 8-1/2"	215.9	+6	O	—
8" × 10"	254	+44	O	—
8" × 10-1/2"	266.7	+57	O	—

Size	Paper Length (mm)	Travel Distance (mm)	Gate 1	Gate 2
8-1/2" × 11"	279.4	+69	O	—
8-1/4" × 13"	330.2	−15	—	O
8-1/2" × 13"	330.2	−15	—	O
8-1/2" × 14"	355.6	+11	—	O
9" × 14"	355.6	+11	—	O
11" × 17"	431.8	+87	—	O

*Gate 1: The Gate Switching Lever remains stationary, guiding paper toward Gate 1.

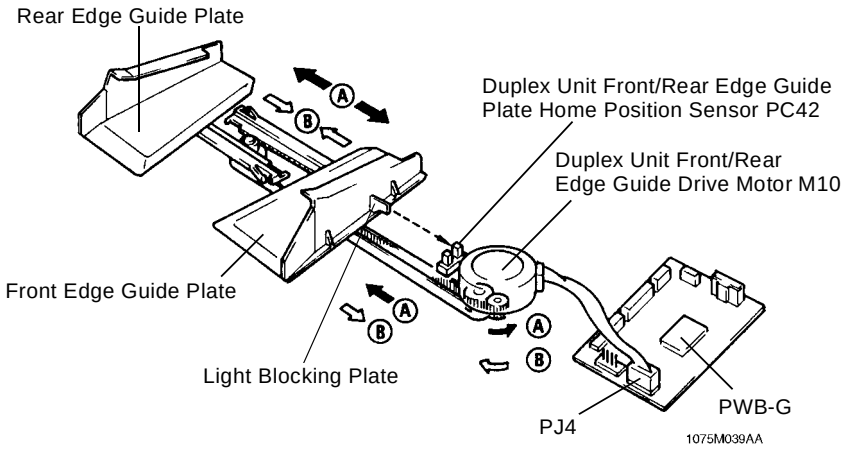
*Gate 2: The Gate Switching Lever swings up to guide paper through Gate 2 into the Copy Storage.

*Travel Distance: The Trailing Gate Unit moves in the + direction when it slides toward the Paddle Roller and in the – direction when it slides toward the Paper Take-Up Unit of the Duplex with reference to its home position.

L: Lengthwise; C: Crosswise

24-5. Front/Rear Edge Guide Plate Drive Mechanism/Control

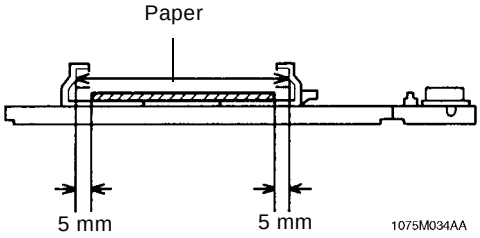
- The Front and Rear Edge Guide Plates of the Duplex Unit align the front and rear edges of the paper being stored into the Copy Storage.
- The drive mechanism employs a rack and pinion gear and each of the two guide plates is moved over the same distance (because of center registration) by the gear and belt driven by Duplex Unit Front/Rear Edge Guide Drive Motor M10.
- M10 turns in steps, each step moving each guide plate a distance of about 0.4 mm with respect to the position where Duplex Unit Front/Rear Edge Guide Plate Home Position Sensor PC42 is blocked. M10 is energized to move the plates up to the corresponding paper size positions.


Rear Edge Guide Plate
Duplex Unit Front/Rear Edge Guide Plate Home Position Sensor PC42
Duplex Unit Front/Rear Edge Guide Drive Motor M10
Front Edge Guide Plate
Light Blocking Plate
PWB-G
PJ4
1075M039AA

M10 turns in the direction of →Ⓐ: ←Ⓐ←(The Front/Rear Edge Guide Plates are moved outward to widen the gap between them.)
M10 turns in direction of ⇦Ⓑ: ⇨Ⓑ ⇦ (The Front/Rear Edge Guide Plates are moved inward to narrow the gap between them.)

◆ **Retracted Position**

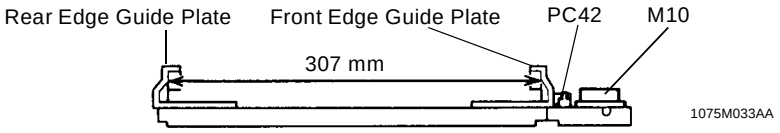
- After the Front/Rear Edge Guide Plates move to the width of the paper, they are retracted as each moves 5 mm away from the corresponding edge of the paper.



◆ **Operation of the Front/Rear Edge Guide Plates (for A4 lengthwise paper)**

<In standby, at home position>

- The Front/Rear Edge Guide Plates are located at a position where Duplex Unit Front/Rear Edge Guide Plate Home Position Sensor PC42 is blocked.

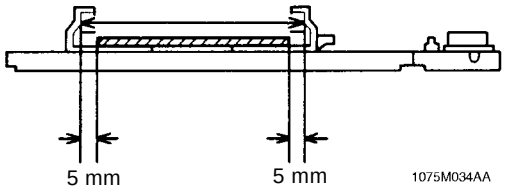


<When storing and taking up a copy>

- Select the 2-sided copy mode and press the Start Key. At the same time, M10 starts turning forward and the two guide plates move to the respective retracted positions.

↓

A4 lengthwise (210 mm) + Retract Distance (5 mm × 2)

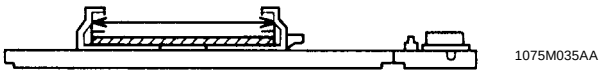


Approx. T msec. after the trailing edge of the paper to be stored in the Duplex Unit has unblocked (H) Duplex Unit Paper Entry Sensor PC38, M10 starts turning forward moving the Front/Rear Edge Guide Plates to the paper aligning positions, the dimension between which is the width of the paper. The two guide plates align the paper.

T: 470 msec. for A4 lengthwise (297 mm)
85 msec. for a length longer than A4 lengthwise

The guide plates move between the retracted and aligning positions for each copy to be stored.

A4 lengthwise (210 mm)



↓

Press the Start Key.

↓

When Duplex Unit Paper Empty Sensor PC41 is unblocked (H), M10 starts turning backward to return the Front/Rear Edge Guide Plates to a position where PC42 is blocked (L).

24-6. Storing of Copies in Duplex Unit

- The 1-sided copy is stored into the Copy Storage of the Duplex Unit as detailed below during the 2-sided copy mode.

<For A4 crosswise paper>

Select the 2-sided copy mode.

↓

Press the Start Key.

↓

Duplex Unit S/P Board

An M7 Remote signal is output from pin 31 of IC1G (to turn M7 forward).
M9 pulse signals are output from pins 56 to 62 of IC1G (to turn M9 forward and backward).
M10 pulse signals are output from pins 35 to 38 of IC1G (to turn M10 forward).

↓

M7 : Energized
M9 : Energized
M10: Energized

↓

The Trailing Gate Unit moves to the position corresponding to the set paper size.
The Front/Rear Edge Guide Plates move to the retracted positions appropriate for the set paper size.

↓

M9, M10: Deenergized

↓

The 1-sided copy is fed into the Duplex Unit.

↓

The trailing edge of the 1-sided copy moves past PC38 (H).

↓ Approx. 470 msec.

PWB-G

M10 pulse signals are output from pins 35 to 38 of IC1G (to turn M10 forward).

↓

M10: Energized

↓

The Front/Rear Edge Guide Plates move to the predetermined paper size position and align the copy.

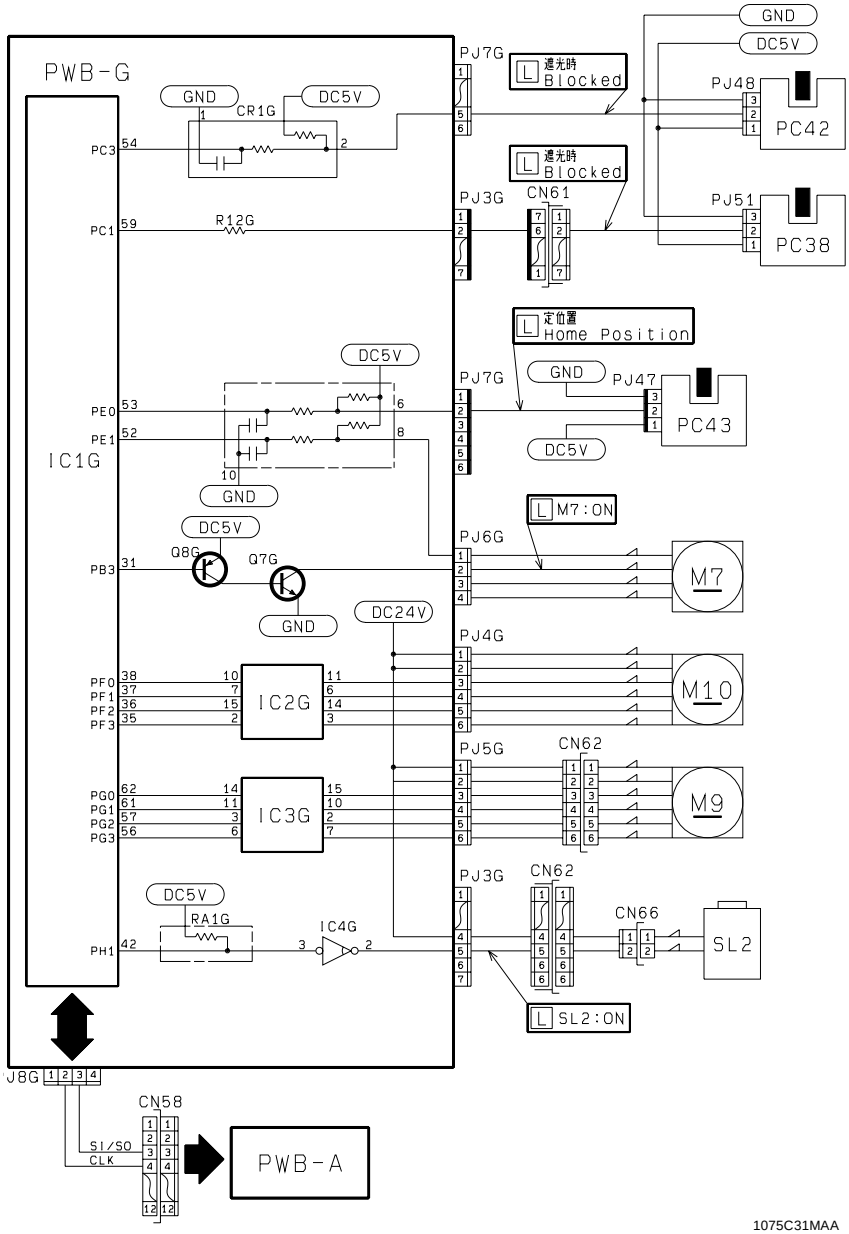
↓

NO ← Is the 1-sided copy just stored the last one?

↓ YES

M10: Deenergized

The copy storing sequence is completed when the Front/Rear Edge Guide Plates complete aligning the copy.


PWB-G
GND
DC5V
CR1G
PC3
54
PC1
59
R12G
PJ7G
遮光時
Blocked
PJ48
PC42
PJ3G
CN61
PJ51
PC38
定位置
Home Position
PJ47
PC43
PE0
53
PE1
52
IC1G
10
Q8G
Q7G
PB3
31
M7:ON
PJ6G
M7
DC24V
PJ4G
PF0
PF1
PF2
PF3
38
37
36
35
IC2G
M10
PJ5G
CN62
PG0
PG1
PG2
PG3
62
61
57
56
IC3G
M9
RA1G
IC4G
PH1
42
CN66
SL2
SL2:ON
J8G
CN58
SI/SO
CLK
PWB-A

1075C31MAA

24-7. Leading Edge Guide Plate and Duplex Paper Take-Up Drive Mechanism/Control

- Copies stored in the Duplex Unit are taken up and fed back into the copier for the second copy cycle by the Duplex Paper Take-Up Roll and Feed Roll. These rolls are driven as Paper Take-Up Motor M1 of the copier drives the Duplex Paper Take-Up Roll shaft. The top copy is separated from the remaining ones by a paper separating mechanism with a torque limiter.
- The Leading Edge Guide Plate aligns the leading edge of the copy being stored into the Copy Storage of the Duplex Unit.
- When Duplex Unit Leading Edge Solenoid SL5 is energized to begin a paper take-up sequence, the Leading Edge Guide Plate is lowered and its stoppers are laid down flat. When Duplex Unit Pick-Up Solenoid SL4 is energized, the Duplex Paper Take-Up Roll is pressed up against the copy and starts taking it up.

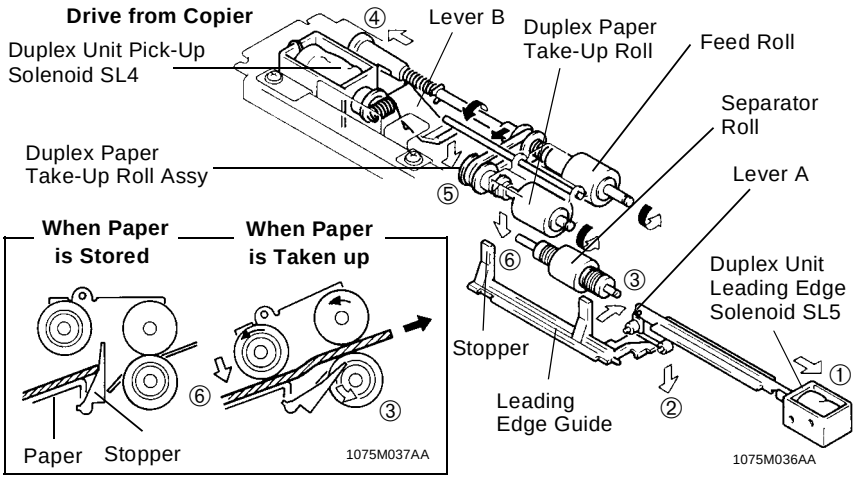
*When SL5 is energized: .. The plunger is pulled in the direction of arrow ①⇨.

Lever A lowers: ..... The Leading Edge Guide Plate lowers in the direction of arrow ②⇩. The stoppers lie down in the direction of arrow ③⇨and the Duplex Unit is now ready to take up the copy.

*When SL4 is energized: .. The plunger is pulled in the direction of arrow ④⇦

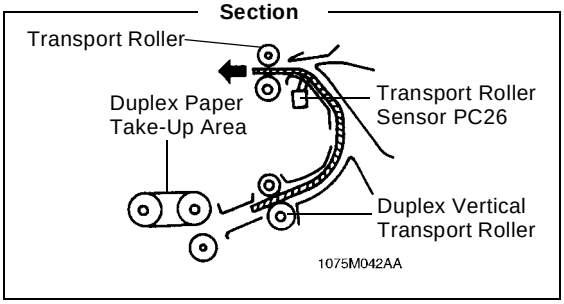
Lever B lowers: ..... The Duplex Paper Take-Up Roll Assy lowers in the direction of arrow ⑤⇩. The Paper Take-Up Roll lowers in the direction of arrow ⑥⇩ and, 200 msec. thereafter, Duplex Unit Paper Take-Up Clutch CL6 is energized and the paper take-up sequence begins.

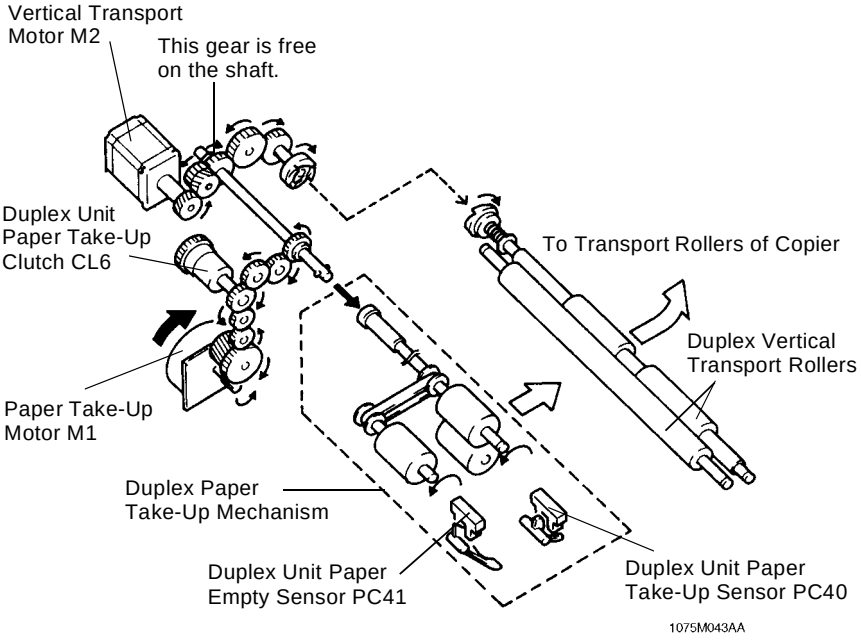
(SL5 and SL4 are energized at the same time.)



◆ **Duplex Vertical Transport Rollers Drive**

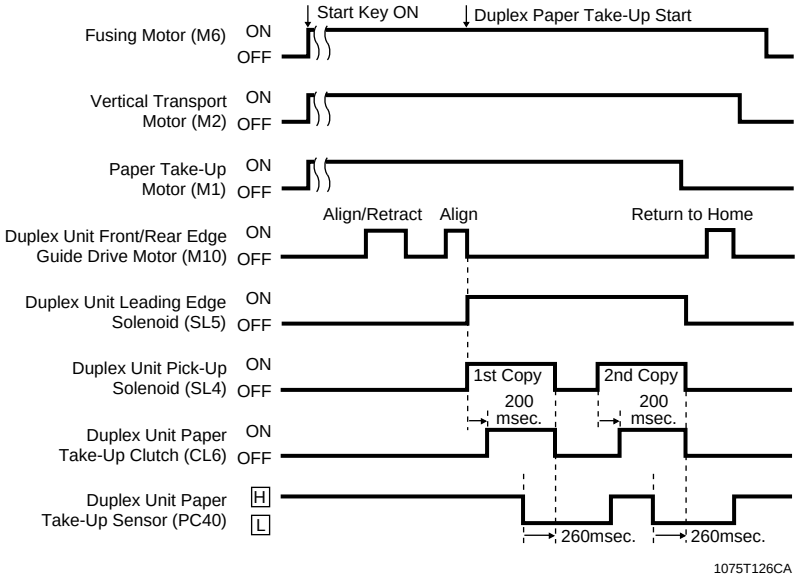
- The paper taken up from the Duplex Unit is fed by the Duplex Vertical Transport Rollers onto the Transport Rollers of the copier.
- The Duplex Vertical Transport Rollers are driven by Vertical Transport Motor M2 of the copier.





24-8. Duplex Paper Take-Up Operation

◆ **Normal mode (Making 2 2-sided copies on A4 crosswise paper from 1-sided originals by using the Duplexing Document Feeder)**



◆ **Paper Take-Up Retry Control**

- If Duplex Unit Paper Take-Up Sensor PC40 is not activated (blocked) within a given period of time after the start of the Duplex paper take-up sequence, the paper take-up sequence starts again after SL4 and SL5 are deenergized. This reduces the occurrence of paper misfeed.

<Paper Take-Up Retry>

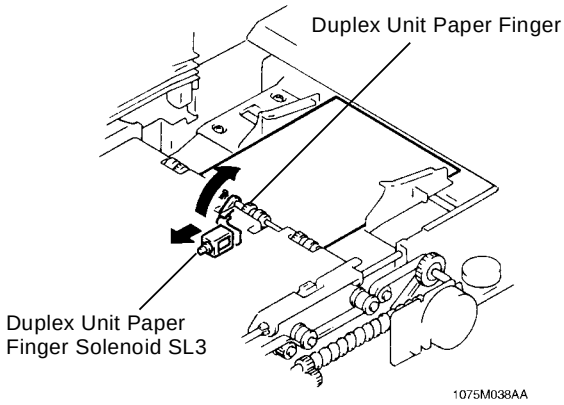
CL6 is energized approx. 200 msec.
after SL4 and SL5 have been energized.
↓
If the leading edge of the copy does not block PC40 within approx. 1,100 msec. after SL4 and SL5 have been energized, the paper take-up retry sequence starts.
↓
SL4 and SL5 are deenergized.
500 msec.
↓
CL6 is energized approx. 200 msec. after SL4 and SL5 have been energized again. (Paper take-up retry operation)

NOTE: The paper take-up retry sequence is not performed in the Time Saver mode.

◆ **Time Saver Mode**

- In the Time Saver mode, the copies stored in the Duplex Unit are taken up and fed back into the copier in a different order from when in the normal mode. When the number of copies remaining to be stored in the Duplex Unit becomes N, that copy is immediately taken up and fed back to the copier and the subsequent ones are taken up each time they have just been stored in the Duplex Unit.
- This mode is set only when the Duplexing Document Feeder is being used [in the standard mode (not in the Mixed Original Detection mode) with full-size zoom ratio, and using 297-mm-long-or-less paper].
- When Duplex Unit Paper Finger Solenoid SL3 is energized, it turns the Duplex Unit Paper Finger so that the finger presses the copy or copies stored in the Duplex Unit.
- When all copies are fed out of the Duplex Unit, the Paper Finger returns to its home position.

No.	Paper Length	Time Saver Mode
1	139 mm to 216 mm	The number of copies remaining to be stored in the Duplex Unit is 4
2	217 mm to 297 mm	The number of copies remaining to be stored in the Duplex Unit is 3



<Operation in Time Saver Mode: A4 crosswise paper, 10 copies>

The trailing edge of the 6th copy moves past Duplex Unit Paper Entry Sensor PC38 (H).

↓ Approx. 470 msec.

The Front/Rear Edge Guide Plates move to the set paper size position to align the copy.

↓

At the same time, Duplex Unit Paper Finger Solenoid SL3 is energized and the Duplex Unit Paper Finger presses the copies stored in the Duplex Unit.

↓

The trailing edge of the 7th copy moves past PC38 (H).
(Each of the 7th and subsequent copies is taken up and fed back into the copier each time it has just been stored.)

↓ Approx. 470 msec.

The Front/Rear Edge Guide Plates move to the set paper size position to align the copy.

↓

Duplex paper take-up sequence starts.

↓

Duplex Unit Leading Edge Solenoid SL5 is energized.
Duplex Unit Pick-Up Solenoid SL4 is energized.

↓ Approx. 200 msec.

260 msec. after the leading edge of the copy has blocked Duplex Unit Paper Take-Up Sensor PC40 (L), SL4 and Duplex Paper Take-Up Clutch CL6 are deenergized and the Front/Rear Edge Guide Plates move to the standby position.

NO ↓

Have all copies been taken up for Time Saver?

↓ YES

After all copies for Time Saver have been taken up and fed in, the copies previously stored in the Duplex Unit are taken up and fed in, one by one.

↓

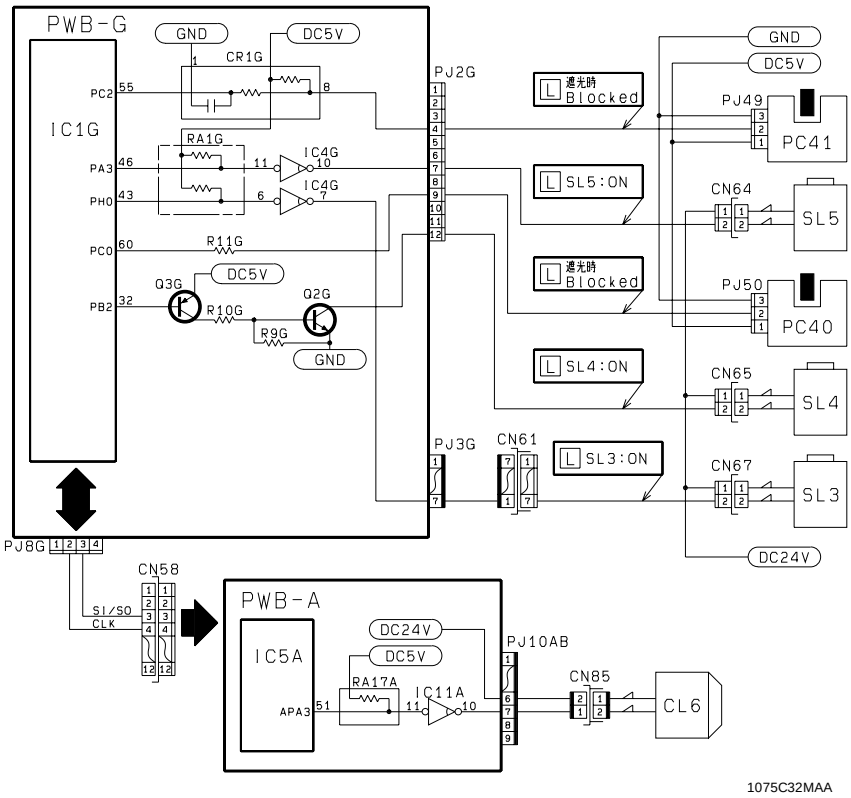
When all copies have been taken up from the Duplex Unit, the Duplex Unit Paper Finger turns to the home position.

↓

Duplex Unit Paper Empty Sensor PC41, which has been in the blocked (L) state, is unblocked (H).

↓

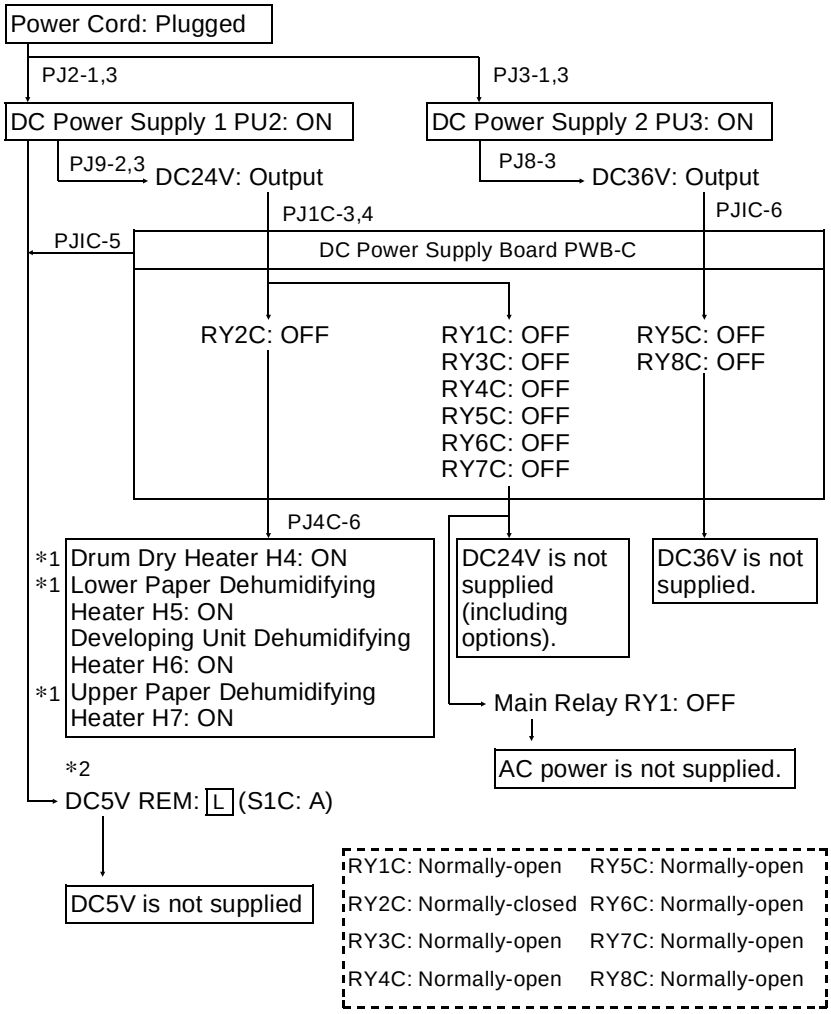
M10 is energized and the Front/Rear Edge Guide Plates return to their home positions.


PWB-G
GND
DC5V
CR1G
IC1G
PC2
55
RA1G
PA3
46
IC4G
PH0
43
PC0
60
R11G
Q3G
DC5V
PB2
32
R10G
Q2G
R9G
GND
PJ2G
遮光時
Blocked
SL5:ON
遮光時
Blocked
SL4:ON
SL3:ON
PJ3G
CN61
PJ49
PC41
CN64
SL5
PJ50
PC40
CN65
SL4
CN67
SL3
GND
DC5V
DC24V
PJ8G
CN58
SI/SO
CLK
PWB-A
IC5A
APA3
51
DC24V
DC5V
RA17A
IC11A
PJ10AB
CN85
CL6
1075C32MAA

25 POWER SUPPLY

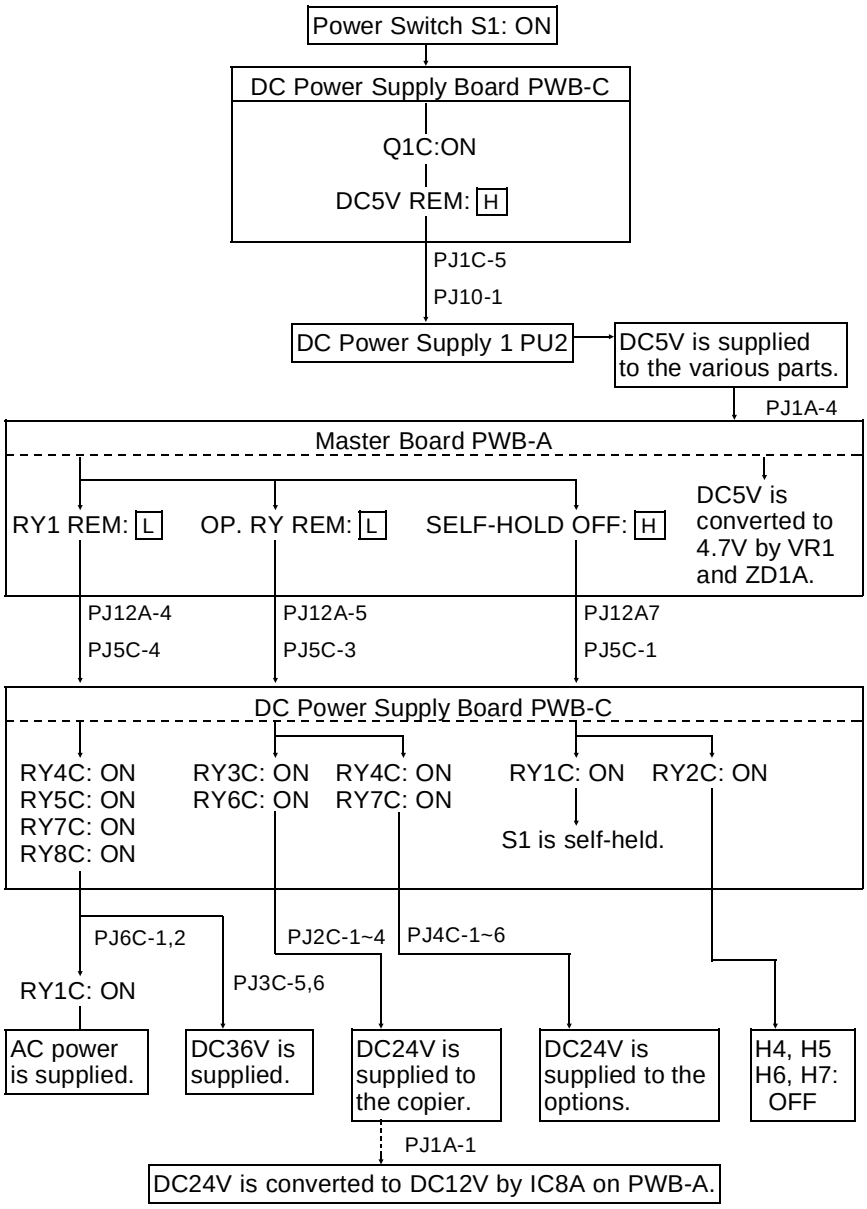
The copier power is supplied as follows when the power cord is plugged in or Power Switch S1 is turned ON.

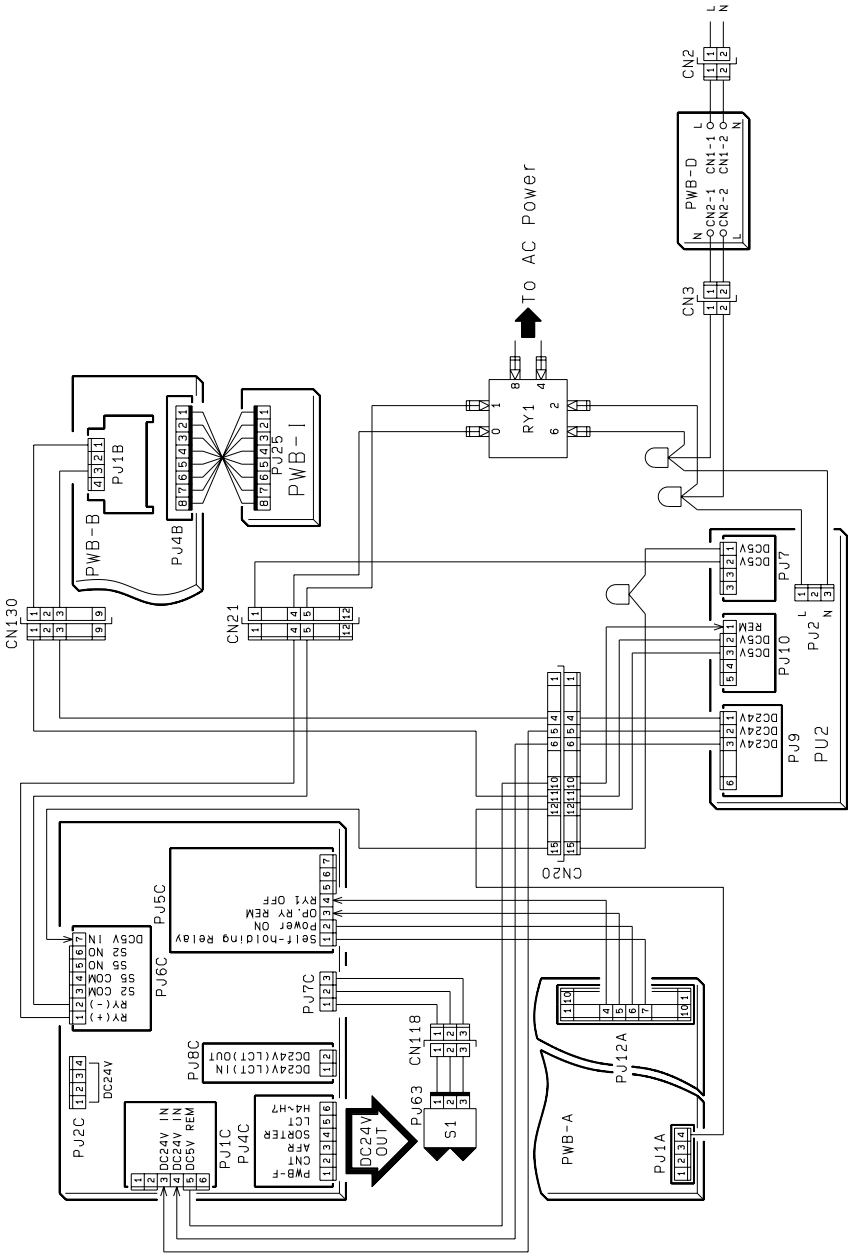
1. When Power Cord is Plugged in.



*1: DC24V is not supplied to H4, H5, and H7 if Drum Dehumidifying Switch S9 and Paper Dehumidifying Switch S10 are OFF.
*2: When S1 on PWB-C is placed in the "A" position, the DC5V REM signal which is input to PU2 goes LOW and, as a result, DC5V is not supplied.

2. Power Switch S1 is Turned ON.




CN2
PWB-D
CN1-1
CN1-2
CN2-1
CN2-2
CN3
To AC Power
RY1
PWB-I
PJ25
PJ4B
PWB-B
PJ1B
CN130
CN21
PJ7
PJ10
PJ9
PU2
CN20
PJ5C
PJ6C
PJ7C
PJ8C
CN118
PJ63
S1
PJ2C
PJ1C
PJ4C
PJ12A
PWB-A
PJ1A
DC24V OUT

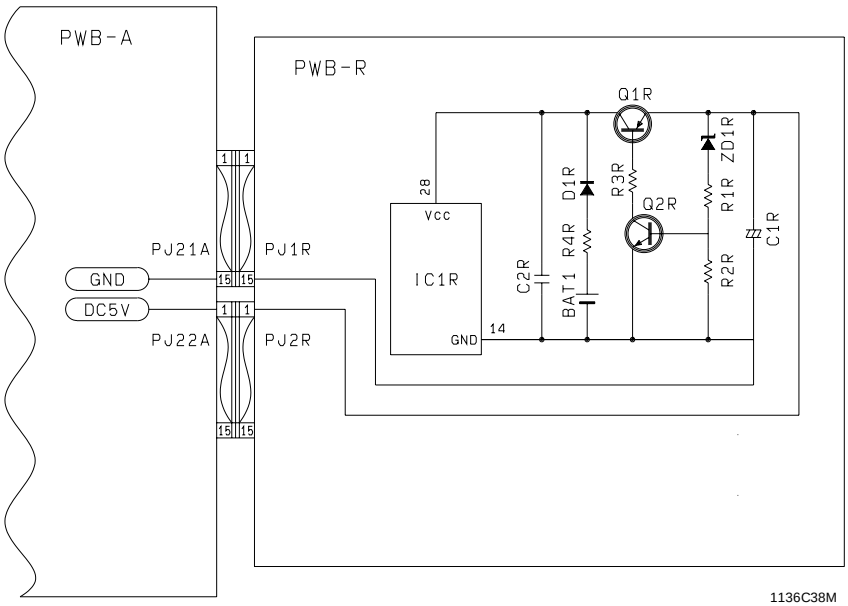
1075C29TAA

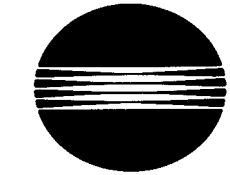
26 MEMORY BACKUP

IC1 (RAM) of RAM Board PWB-R connected to Master Board PWB-A stores the setting/adjustment values set in the Tech. Rep. modes as well as the counter counts. Backup Battery BAT1 is mounted on PWB-R to prevent the contents of memory from being lost when the power cord is unplugged or PWB-R removed from the copier. BAT1 requires a voltage of 2 V or more to retain the contents of memory.

Important

As noted above, the RAM stores critical data. If PWB-R has been replaced with a new one, memory must first be cleared and then all settings be made again. It should also be noted that PWB-R should not be replaced at the same time when PWB-A is replaced.





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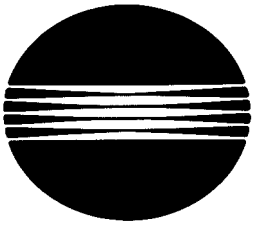
EP6000

DIS/REASSEMBLY, ADJUSTMENT



MINOLTA

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1 SERVICE INSTRUCTIONS

1-1. PRECAUTIONS FOR DISASSEMBLY/ADJUSTMENTS

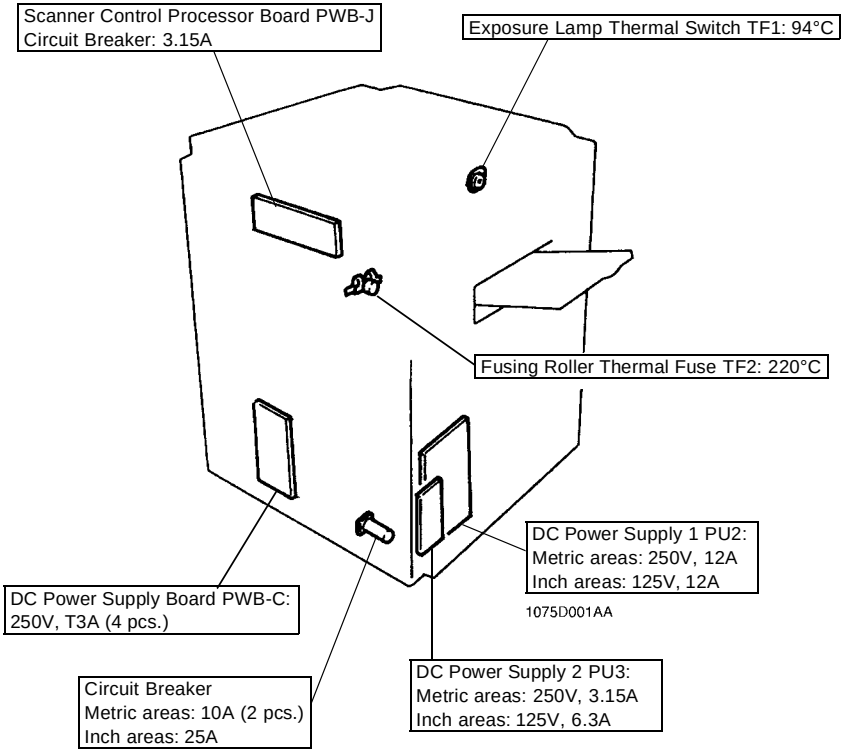
Observe the following precautions whenever servicing the copier.

- Be sure to unplug the copier from the outlet before attempting to service the copier.
- The basic rule is not to operate the copier anytime during disassembly.
  If it is absolutely necessary to run the copier with its covers removed, use care not to allow your clothing to be caught in revolving parts such as the Timing Belt and gears.
- Be sure to use the Interlock Switch Actuating Jig whenever it is necessary to actuate the Interlock Switch with the covers left open or removed.
- Do not plug in or unplug print jacks on the Board or connect or disconnect the Board connectors while power is being supplied to the copier.
- Do not use flammable spray around the copier in operation.
- The Magnet Roller of the Imaging Unit generates strong magnetic force. Do not bring it near a cathode-ray tube or watch.
- A used lithium cell should be disposed of according to the local regulations and never be discarded casually or left unattended at the user's premises.
- Do not use an air gun or vacuum cleaner for cleaning the ATDC Sensor and other sensors, as they can cause electrostatic destruction. Use a blower brush and cloth. If a unit containing these sensors is to be cleaned, first remove the sensors from the unit.
- When handling the PWBs with MOS ICs, observe "1-2. Instructions for Handling the PWBs with MOS ICs."
- When handling the PC Drum, observe precautions given in "1-3. Handling of the PC Drum."
- Note that replacement of a PWB may call for readjustments or resetting of particular items.
- Use the right screw in the right place at reassembly. Note that some are longer and some are thicker than others.
- A toothed washer is used with the screw that secures the ground wire to ensure positive conduction. Do not forget to insert this washer at reassembly.
- To reassemble the copier, reverse the order of disassembly unless otherwise specified.
- If it becomes necessary to replace the thermal fuse or any other fuse mounted on a board, be sure to use one of the rating marked on the blown fuse. Always note the rating marked on the fuse, as the rating and mounting site or number used are subject to change without notice.
- Do not pull out the Toner Hopper while the Toner Bottle is turning, as a damaged Toner Replenishing Motor or locking mechanism could result. If the copier is to be run with the Front Door swung down, make sure that the Toner Hopper is in the locked position.

CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

ADVARSEL!: Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

<Identification of Fuses and Circuit Breakers>


Scanner Control Processor Board PWB-J
Circuit Breaker: 3.15A
Exposure Lamp Thermal Switch TF1: 94°C
Fusing Roller Thermal Fuse TF2: 220°C
DC Power Supply 1 PU2:
Metric areas: 250V, 12A
Inch areas: 125V, 12A
1075D001AA
DC Power Supply Board PWB-C:
250V, T3A (4 pcs.)
Circuit Breaker
Metric areas: 10A (2 pcs.)
Inch areas: 25A
DC Power Supply 2 PU3:
Metric areas: 250V, 3.15A
Inch areas: 125V, 6.3A

1-2. INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs

The following precautions must be observed when handling P.W. Boards with MOS (Metal Oxide Semiconductor) ICs.

During Transportation/Storage:
- During transportation or when in storage, new P.W. Boards must not be indiscriminately removed from their protective conductive bags.
- Do not store or place P.W. Boards in a location exposed to direct sunlight.
- When it becomes absolutely necessary to remove a Board from its conductive bag or case, always place it on its conductive mat in an area as free as possible from static electricity.
- Do not touch the pins of the ICs with your bare hands.

During Replacement:
- Before unplugging connectors from the P.W. Boards, make sure that the power cord has been unplugged from the outlet.
- When removing a Board from its conductive bag or conductive case, do not touch the pins of the ICs or the printed pattern. Place it in position by holding only the edges of the Board.
- Before plugging connectors into the Board, make sure that the power cord has been unplugged from the power outlet.

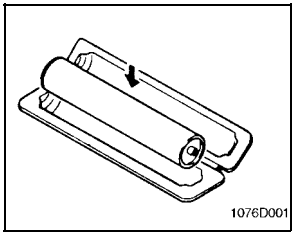
During Inspection:
- Avoid checking the IC directly with a multimeter; use connectors on the Board.
- Never create a closed circuit across IC pins with a metal tool.
- When it is absolutely necessary to touch the ICs and other electrical components on the Board, be sure to ground your body.

1-3. HANDLING OF THE PC DRUM

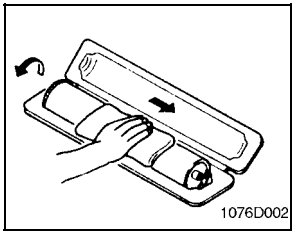
During Transportation/Storage:
- Use the specified carton whenever moving or storing the PC Drum.
- The storage temperature is in the range between –20°C and 40°C.
- In summer, avoid leaving the PC Drum in a car for a long time.

Handling:
- Ensure that the correct PC Drum is used.
- Whenever the PC Drum has been removed from the copier, store it in its Container or protect it with a Drum Cloth.
- The PC Drum exhibits greatest light fatigue after being exposed to strong light over an extended period of time. Never, therefore, expose it to direct sunlight.
- Use care not to contaminate the surface of the PC Drum with oilbase solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not apply chemicals to the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum unless its surface is contaminated with fingerprints.

If the surface is contaminated with fingerprints, clean it using the following procedure.

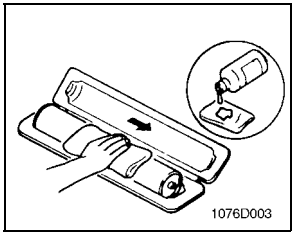


1. Place the PC Drum into one half its container.



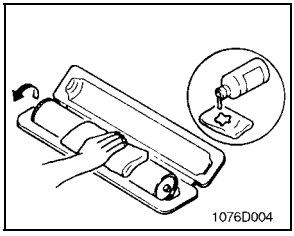
2. Gently wipe the residual toner off the surface of the PC Drum with a dry, dust-free cotton pad.
   a) Rotate the PC Drum so that the area of its surface on which the line of toner left by the Cleaning Blade is present is facing staright up. Wipe the surface in one continuous movement from the rear edge of the PC Drum to the front edge and off the surface of the PC Drum.
   b) Rotate the PC Drum slightly and wipe the newly exposed surface area with a clean face of the dust-free cotton pad. Repeat this procedure until the entire surface of the PC Drum has been thoroughly cleaned.

   * Always use a clean face of the dry dust-free cotton pad until no toner is evident on the face of the pad after wiping.



3. Soak a small amount of either ethyl alcohol or isopropyl alcohol into a clean, unused dust-free cotton pad which is folded over into quarters. Now, wipe the surface of the PC Drum in one continuous movement from its rear edge to its front edge and off its surface one to two times.

   * Never move the pad back and forth.



4. Using the same face of the pad, repeat the procedure explained in the latter half of step 3 until the entire surface of the PC Drum is wiped. Always overlap the areas when wiping. Two complete turns of the PC Drum would be appropriate for cleaning.

NOTES

- *The Organic Photoconductor Drum is softer than CdS and Selenium Drums and is therefore susceptible to scratches.*
- *Even when the PC Drum is only locally dirtied, wipe the entire surface.*
- *Do not expose the PC Drum to direct sunlight. Clean it as quickly as possible even under interior illumination.*
- *If dirt remains after cleaning, repeat the entire procedure from the beginning one more time.*

1-4. PARTS WHICH MUST NOT BE TOUCHED

(1) Red Painted Screws

Purpose of Application of Red Paint

Red painted screws show that the assembly or unit secured can only be adjusted or set at the factory and shall not be readjusted, set, or removed in the field.
Note that when two or more screws are used on the part in question, only one representative screw may be marked with red paint.

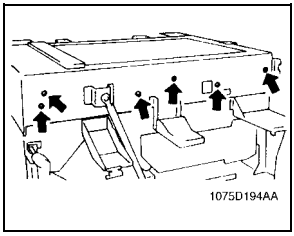
(2) Variable Resistors on Board

Do not turn the variable resistors (potentiometers) on boards to which no adjusting instructions are given in "ADJUSTMENT."

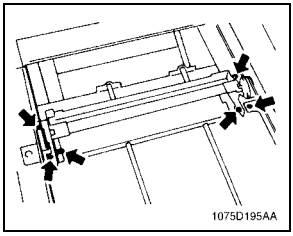
(3) Other Screws

Although not marked with red paint, the following screws must not be loosened or readjusted.

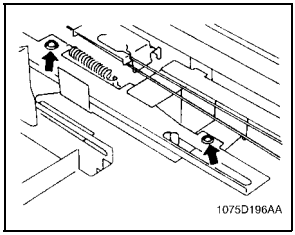
6 screws on the Front and Rear Scanner Rails



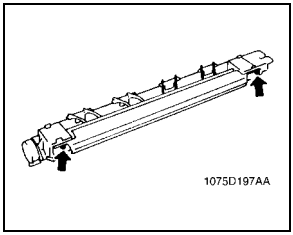
4 screws and 2 set screws on the 2nd/3rd Mirrors Carriage



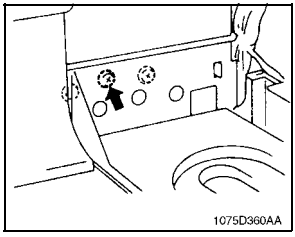
2 screws on the 4th/5th Mirrors Carriage



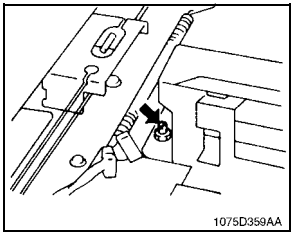
2 screws on the Pre-Image Transfer Guide Plate



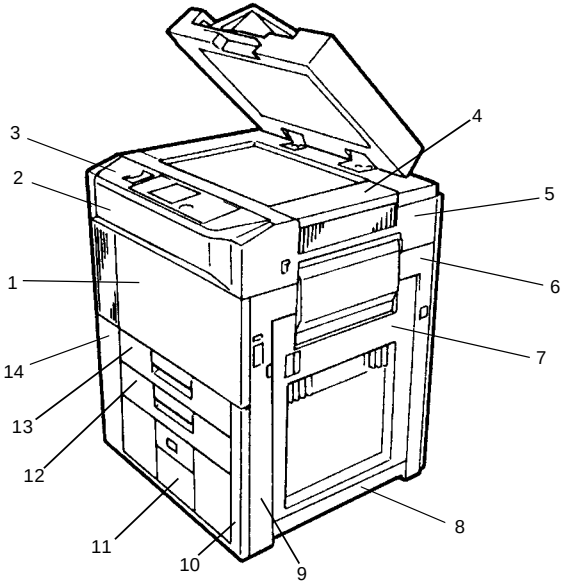
4th/5th Mirrors Carriage height adjusting screw (front)



4th/5th Mirrors Carriage height adjusting screw (rear)



2-1. DOORS, COVERS, AND EXTERIOR PARTS: IDENTIFICATION AND REMOVAL PROCEDURES



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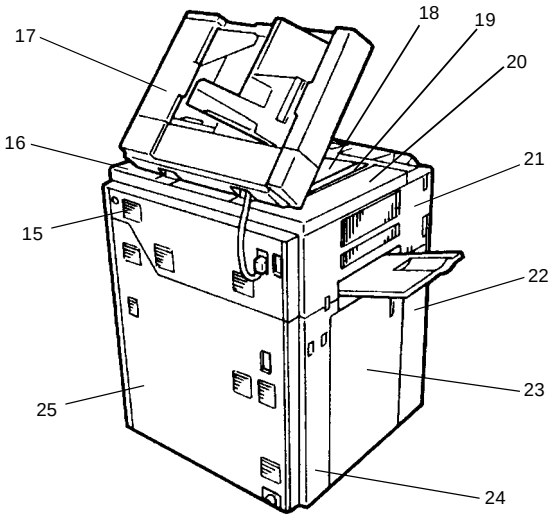

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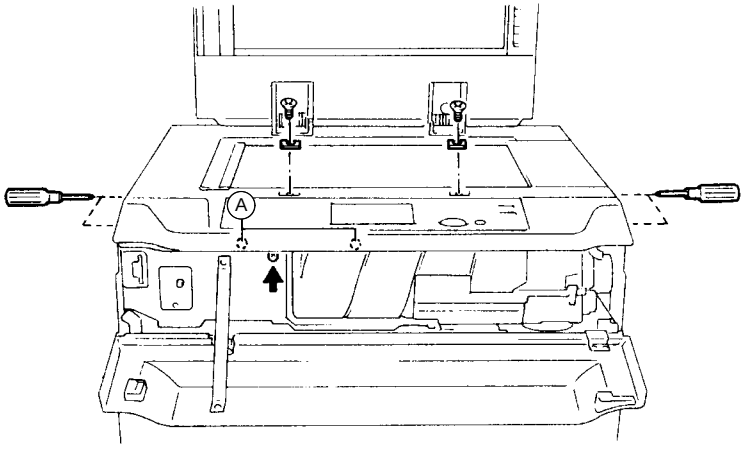
No.	Part Name	Removal Procedure
1	Front Lower Door	Open the Front Lower Door. → Remove 2 belt mounting screws. → Remove 4 Front Lower Door mounting screws.
2	Front Upper Door	Open the Front Upper Door. → Remove 1 belt mounting screw. → Remove 4 Front Upper Door mounting screws.
3	Control Panel Unit	See p. D-8.
4	Upper Right Cover	Loosen the center upper mounting screw on the Right Upper Cover. → Pull the Upper Right Cover up.
5	Right Upper Cover	Open the Front Upper Door. ⇒ Swing up the Multi Bypass Table. → Remove 4 Right Upper Cover mounting screws.
6	Right Rear Cover	Remove 2 Right Rear Cover mounting screws.
7	Right Door (Multi Bypass Unit)	Remove the Right Rear Cover. ⇒ Remove the harness from one wiring saddle. ⇒ Unplug 3 connectors. → Remove 1 ground wire mounting screw. ⇒ Open the Right Door and pull it up.
8	Right Lower Cover	Open the Right Door. → Remove 2 Right Lower Cover mounting screws.
9	Right Front Cover	Open the Front Lower Door. → Remove 3 Right Front Cover mounting screws.
10	Front Right Cover	Slide out all paper drawers. → Remove 4 Front Right Cover mounting screws.
11	3rd Drawer	See p. D-25.
12	2nd Drawer	Remove the Front Right Cover. ⇒ Remove the Drawer Stopper. ⇒ Slide out the 2nd Drawer and, raising it slightly up, pull it out.
13	1st Drawer	Remove the Front Right Cover. ⇒ Remove the Drawer Stopper. ⇒ Slide out the 1st Drawer and, raising it slightly up, pull it out.
14	Front Left Cover	Slide out all paper drawers. ⇒ Open the Left Door. → Remove 2 Left Front Cover mounting screws. → Remove 3 Front Left Cover mounting screws. (The Front Left Cover and Left Front Cover are secured by means of metal plates.)
22	Left Front Cover	

No.	Part Name	Removal Procedure
15	Rear Upper Cover	Remove 3 Rear Upper Cover mounting screws.
16	Upper Rear Cover	Remove 4 AFR-9 mounting screws. → Remove 2 Ornament Covers. → Remove 2 Upper Rear Cover mounting screws.
17	AFR-9	Unplug one connector. → Remove 2 AFR-9 mounting screws.
18	Original Glass	Raise the AFR-9. ⇒ Remove 2 Original Width Scale mounting screws. *Note: When the Original Width Scale has been removed, use care not to lose two springs.*
19	Original Width Scale	
20	Upper Left Cover	Remove the Upper Rear Cover. → Remove the Control Panel. → Remove 2 Upper Left Cover mounting screws.
21	Left Upper Cover	Open the Front Upper Door. → Remove 4 Left Upper Cover mounting screws.
23	Left Door	Remove the Left Rear Cover. → Open the Left Door and pull it up.
24	Left Rear Cover	Remove 3 Left Rear Cover mounting screws.
25	Rear Lower Cover	Remove 4 Rear Lower Cover mounting screws.

◆ Removal of the Control Panel Unit (No. 3)

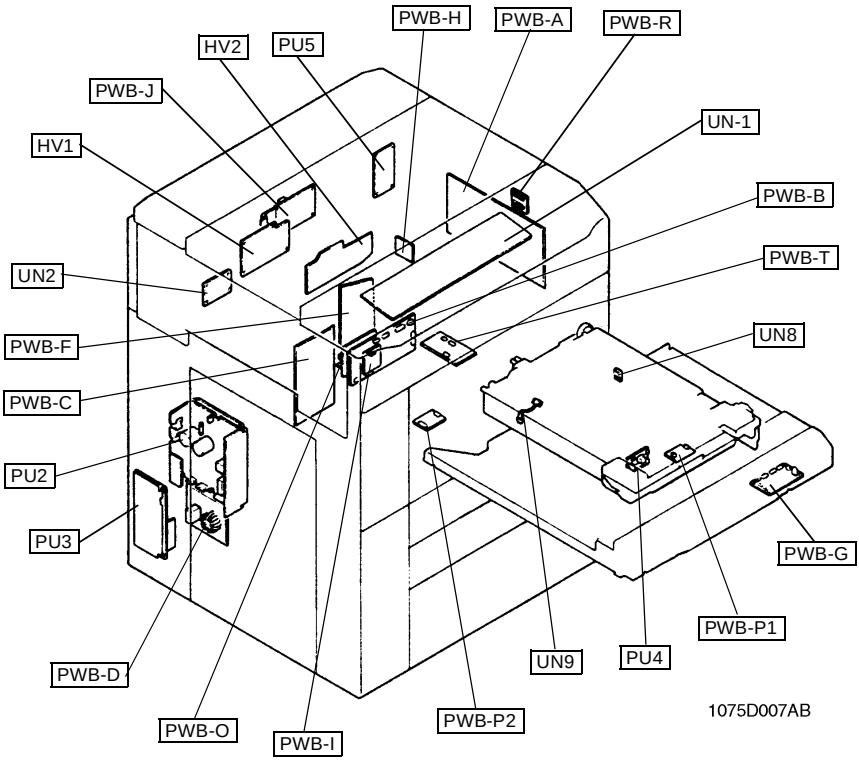
1. Remove the Right Upper Cover and Left Upper Cover.
2. Raise the AFR-9 and remove the magnet catches by removing two screws.
3. Loosen four screws on the right and left as illustrated below and remove one screw beside the Toner Bottle.
4. Raising the Control Panel Unit, unplug three connectors. This allows the Control Panel Unit to be removed.

* To remove Control Panel UN1 only, loosen two screws (A) and, raising the Control Panel, unplug two connectors.



2-2. REMOVAL OF CIRCUIT BOARDS AND OTHER ELECTRICAL COMPONENTS

- When removing a circuit board or other electrical component, refer to "PRECAUTIONS FOR HANDLING THE PWBs" contained in SWITCHES ON PWBs and follow the corresponding removal procedures.
- The removal procedures given in the following omit the removal of connectors and screws securing the circuit-board support or circuit board.
- Where it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.



NOTE

Replacement of PWB-R, UN2, UN8, UN9, and PU5 calls for readjustments or resetting of particular items. For details, see "ADJUSTMENT."

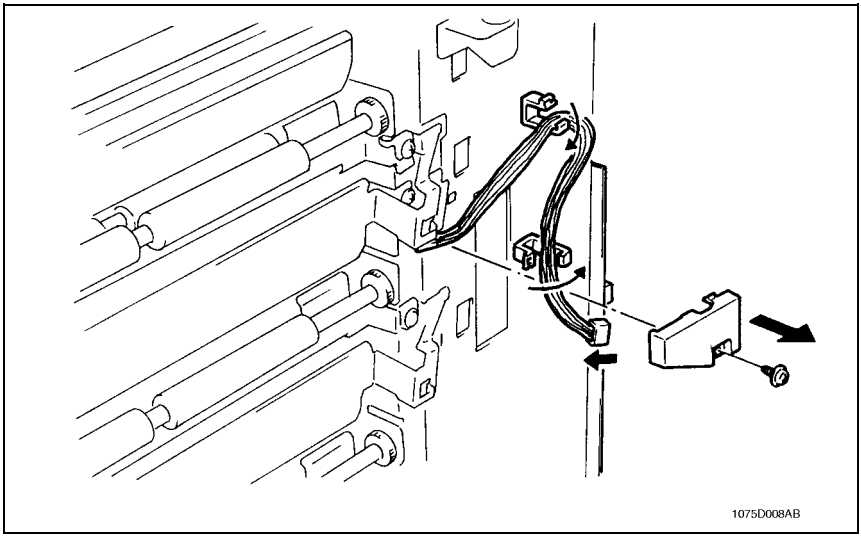
Symbol	Name	Removal Procedure
PWB-A	Master Board	Remove the Right Upper Cover. → Remove PWB-A.
PWB-B	MSC Board	Open the Front Lower Door. → Open the Front Upper Door. → Remove the Panel Lower Cover. → Remove PWB-B.
PWB-C	DC Power Supply Board	Remove the Rear Lower Cover. → Remove PWB-C.
PWB-D	Noise Filter Board	Remove the Rear Lower Cover. → Remove the Power Unit Assy. → Remove PWB-D.
PWB-F	Drawer S/P Board	Remove the Rear Lower Cover. → Remove PWB-F.
PWB-G	Duplex Unit S/P Board	Open the Front Lower Door. → Remove the Duplex Unit Cover. → Remove PWB-G.
PWB-H	AE Sensor Board	Remove the Original Glass. → Remove the Optical Cover. → Remove PWB-H.
PWB-I	Tech. Rep. Setting Switches Board	Open the Front Lower Door. → Open the Front Upper Door. → Remove the Panel Lower Cover. → Remove PWB-I.
PWB-J	Scanner Control Processor Board	Remove the Rear Upper Cover. → Remove PWB-J.
PWB-O	M14/M16 Drive Board	Open the Front Lower Door. → Open the Front Upper Door. → Remove the Left Upper Cover. → Remove the Panel Lower Cover. → Remove the PWB-B mounting bracket. → Remove PWB-O.
PWB-P1	PC Drum Charge Wire Cleaning Motor Drive Board	Open the Front Lower Door. → Remove the PC Unit Cover. → Remove PWB-P1.
PWB-P2	Image Transfer/Paper Separator Charge Wire Cleaning Motor Drive Board	Open the Front Lower Door. → Release and swing up the Upper Half of the copier. → Remove the Image Transfer Cover. → Remove PWB-P2.
PWB-R	RAM Board	Remove the Right Upper Cover. → Remove PWB-R.
PWB-T	Synchronizing Motor Control Board	Open the Front Lower Door. → Remove the Image Transfer Cover. → Remove the Synchronizing Rollers Unit. → Remove PWB-T.
UN1	Control Panel	See p. D-8.
UN2	Original Size Detecting Board	Remove the Rear Upper Cover. → Remove the Left Upper Cover. → Remove UN2.
UN8	ATDC Sensor	Open the Front Lower Door. → Slide out the PC Unit. → Remove the Developing Unit. → Remove the Duct Cover. → Remove UN8.
UN9	AIDC Sensor	Open the Front Lower Door. → Slide out the PC Unit. → Remove the Cleaning Unit. → Remove the PC Drum. → Remove the PC Drum Paper Separator Fingers Assy. → Remove UN9.
PU2	DC Power Supply 1	Remove the Rear Lower Cover. → Remove the Power Unit Assy. → Remove PU2.
PU3	DC Power Supply 2	Remove the Rear Lower Cover. → Remove the Power Unit Assy. → Remove PU3.

Symbol	Name	Removal Procedure
PU4	Pre-Image Transfer Lamp Power Supply	Open the Front Lower Door. → Slide out the PC Unit. → Remove the Cleaning Unit. → Remove PU4.
PU5	Exposure Lamp Regulator	Remove the Rear Upper Cover. → Remove the Upper Rear Cover. → Remove the PWB-J. → Remove the PU5 Cover. → Remove PU5.
HV1	PC Drum Charge HV	Remove the Rear Upper Cover. → Remove the Upper Rear Cover. → Remove PWB-J. → Remove the HV1 mounting bracket. → Remove HV1.
HV2	Image Transfer/Paper Separator HV	Remove the Rear Lower Cover. → Remove HV2.

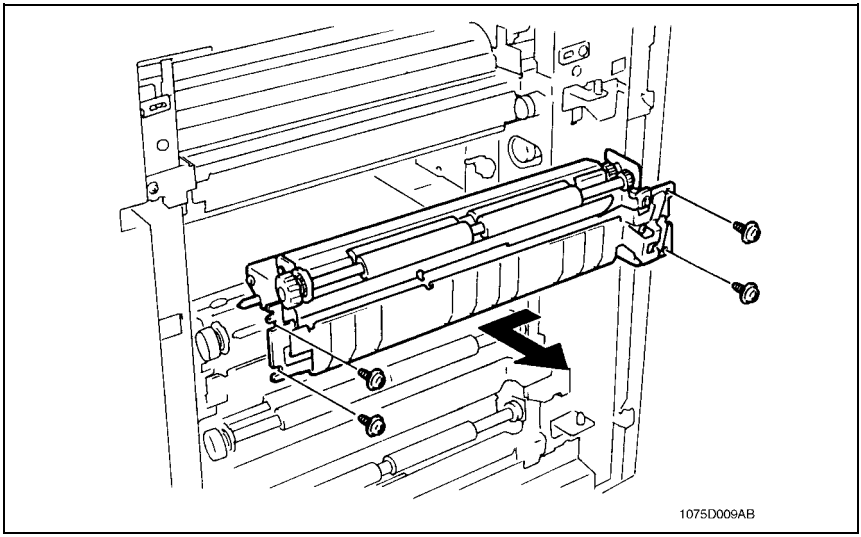
2-3. PAPER TAKE-UP/TRANSPORT SECTIONS

(1) Removal of the Paper Take-Up Unit

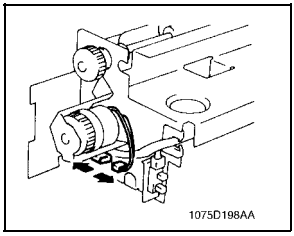
1. Remove the Right Door (Multi Bypass Unit).
2. Slide out the drawer.
3. Remove one screw and the harness cover.
4. Remove the locking wiring saddle.
5. Unplug connectors from Drawer S/P Board PWB-F.



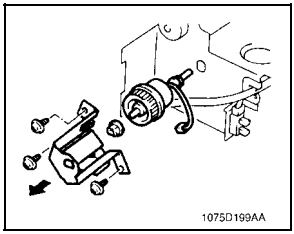
6. Remove four screws each and slide the Paper Take-Up Unit in the direction shown in the illustration.



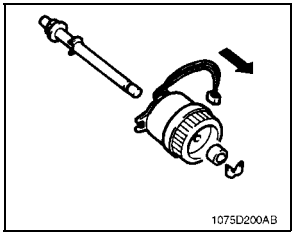
(2) Replacement of the Paper Take-Up Clutch



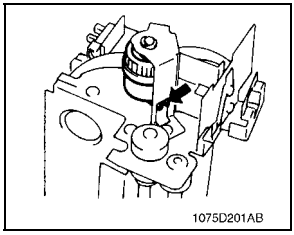
1. Remove the Paper Take-Up Unit.
2. Unplug one connector of the Paper Take-Up Clutch.



3. Remove three screws and the Paper Take-Up Clutch mounting bracket.
4. Remove the bushing and Paper Take-Up Clutch Assy.



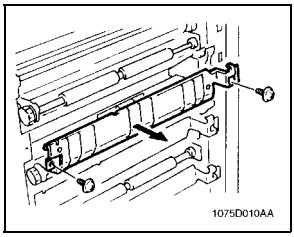
5. Remove the E-ring and Paper Take-Up Clutch.



NOTE

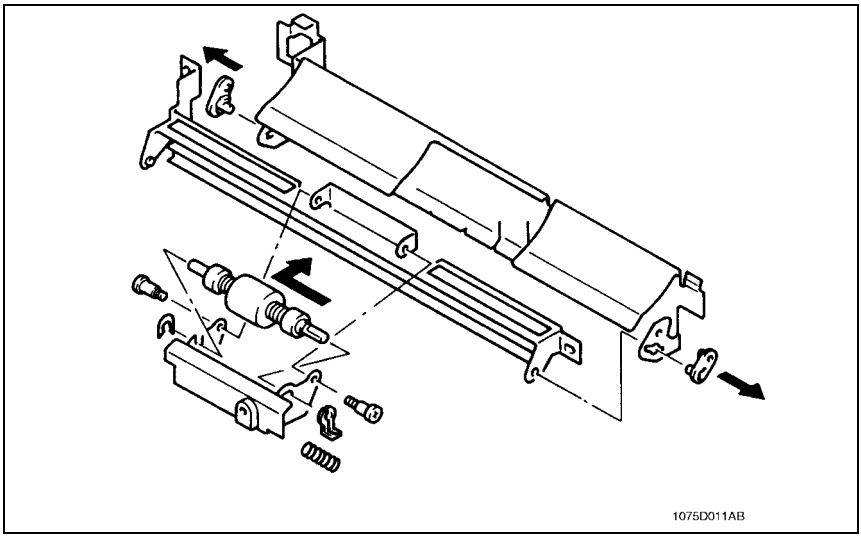
When reinstalling the Paper Take-Up Clutch, secure it in position with the protrusion of the clutch aligned with the cutout in the mounting bracket.

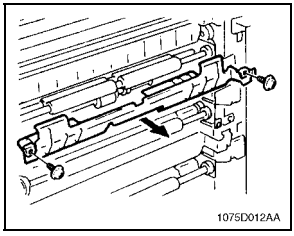
(3) Replacement of the Paper Take-Up Roll, Paper Feed Roll, and Paper Separator Roll Assy



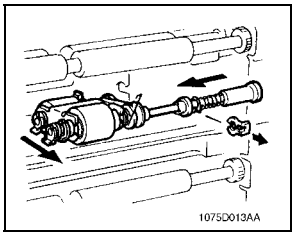
1. Open the Right Door.
2. Remove two screws and the Paper Separator Unit.

3. Remove the pivot pins on both ends and the Guide Plate.
4. Remove two shoulder screws of the Paper Separator Roll Assy.
5. Remove two C-clips and slide the bushing off to remove the Paper Separator Roll Assy.



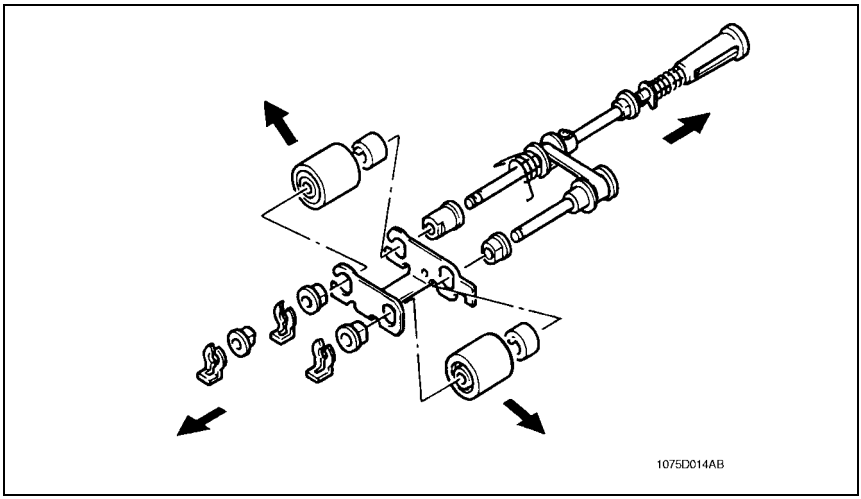


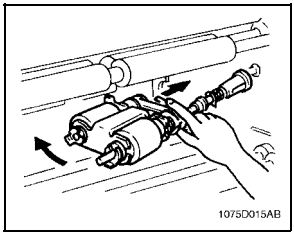
6. Remove two screws and the Paper Guide Plate.



7. Remove the C-clip and slide the bushing to the side.
8. Slide the coupling to the left and remove the Paper Take-Up Roll Assy.

9. Remove the C-clip and slide the bushing off to remove the Paper Take-Up Roll and Feed Roll.

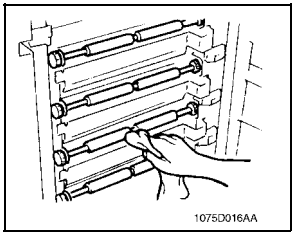




NOTE

When reinstalling the Paper Take-Up Roll Assy, place it horizontally by holding down the torsion spring.

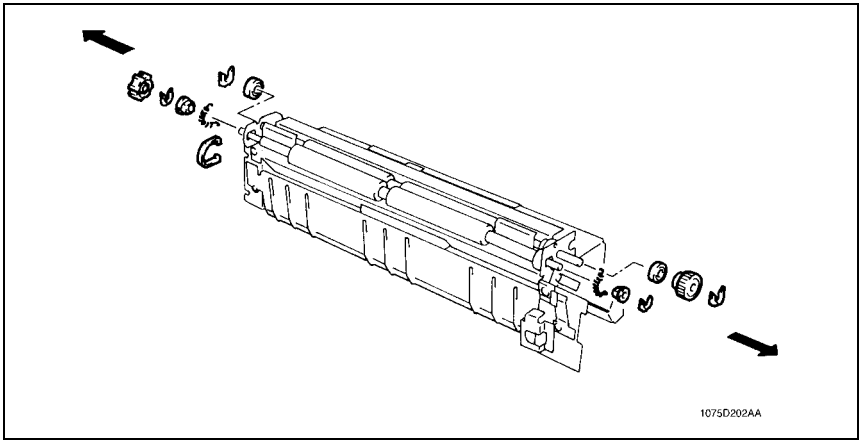
(4) Cleaning of the Vertical Transport Rollers



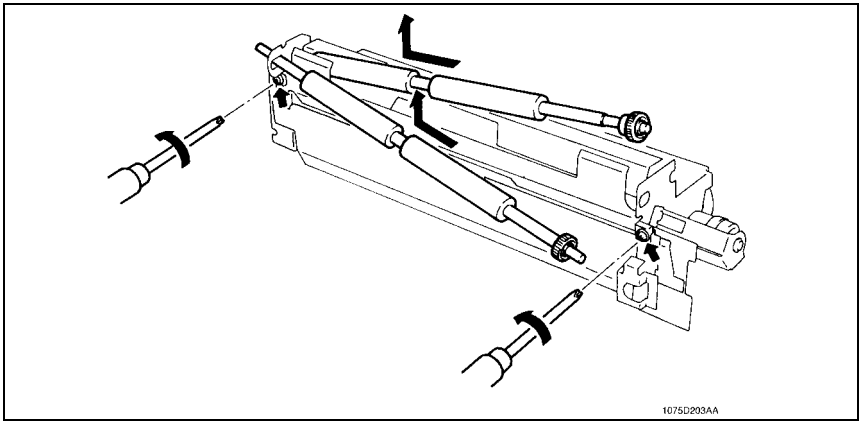
1. Open the Right Door.
2. Using a soft cloth dampened with alcohol, wipe clean each Vertical Transport Roller.

(5) Replacement of the Vertical Transport Rollers

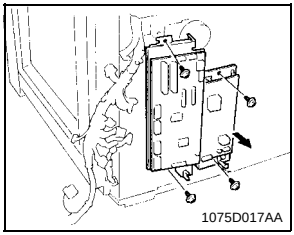
1. Remove the Paper Take-Up Unit.
2. Remove the Misfeed Removal Knob, edge cover, and two pressure springs.
3. Remove four C-clips, two bushings, one gear, and two bearings.



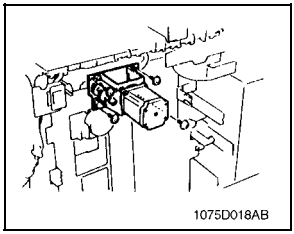
4. Remove the Vertical Transport Roller (white) by sliding it in the direction shown.
5. Loosen two screws on the Paper Guide Plate and remove the Vertical Transport Roller (black) by sliding it in the direction shown.



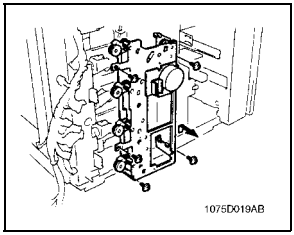
(6) Removal of the Lift-Up Motor (Metric areas only)



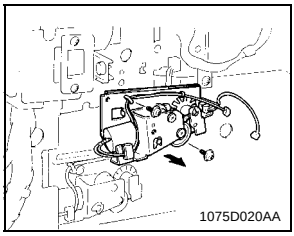
1. Remove the Right Rear Cover and Rear Lower Cover.
2. Unplug the connectors from DC Power Supply Board PWB-C and Drawer S/P Board PWB-F and remove the harness from the wiring saddle.
3. Remove four screws and the mounting brackets for PWB-C and PWB-F.



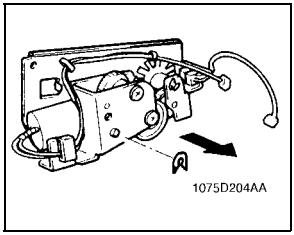
4. Remove the Toner Collecting Bottle. Remove two screws and the metal plate.
5. Remove four screws and unplug one connector to free the Vertical Transport Motor Assy.



6. Remove five screws. Slightly raising the Paper Take-Up Drive Assy, remove it together with the Vertical Transport Motor Assy.

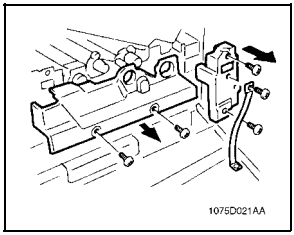


7. Unplug two connectors, remove two screws and the Lift-Up Motor Assy.

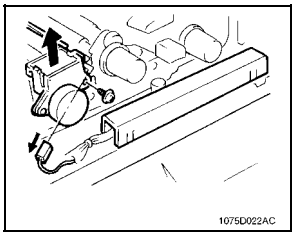


8. Remove the C-clip and the Lift-Up Motor.

(7) Removal of the Synchronizing Rollers Unit

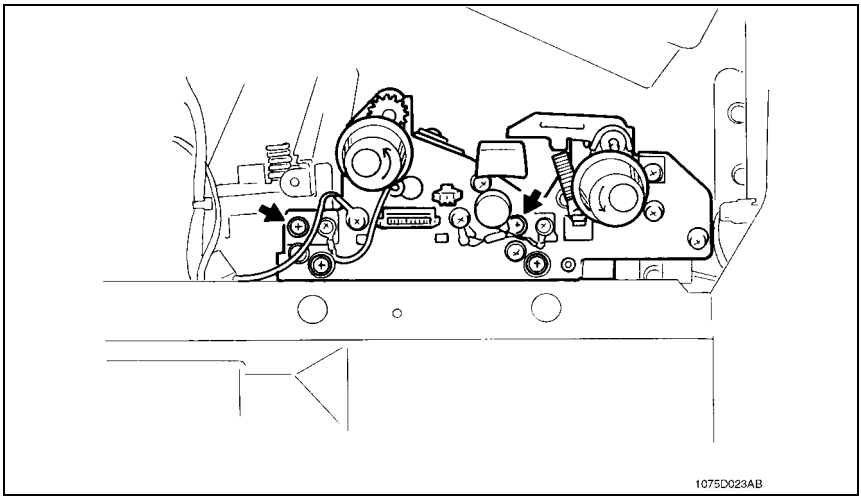


1. Open the Front Lower Door and remove three screws and the Total Counter Cover.
2. Release and swing up the Upper Half of the copier and remove two screws and the Image Transfer Cover.

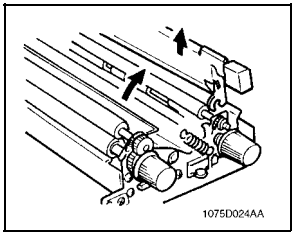


3. Unplug two connectors and remove one screw and the Image Transfer/Paper Separator Coronas.

4. Open the Right Door (Multi Bypass Unit).
5. Unplug two connectors, remove the two screws shown, and pull the Synchronizing Rollers Unit out to the front.



(8) Disassembly of the Synchronizing Rollers Unit

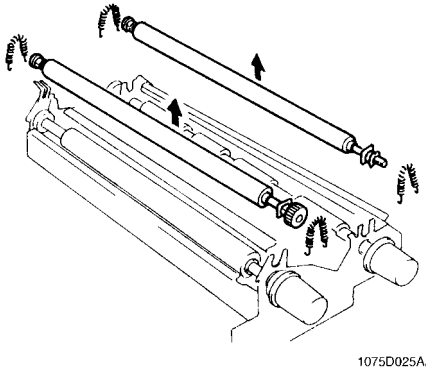


1. Remove the Synchronizing Rollers Unit.
2. Unhook one spring. Remove the Misfeed Removal Guide Plate by turning it 90° and then lifting it.

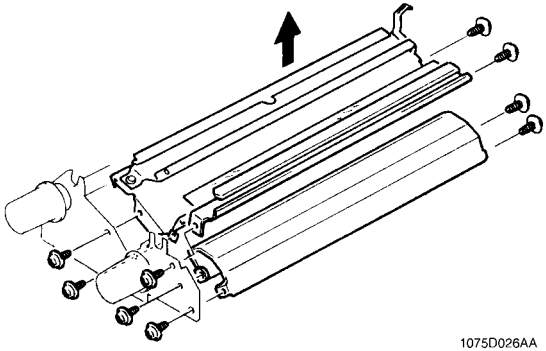
3. Remove the pressure springs at the front and rear, Upper Transport Roller, and Upper Synchronizing Roller.

NOTE

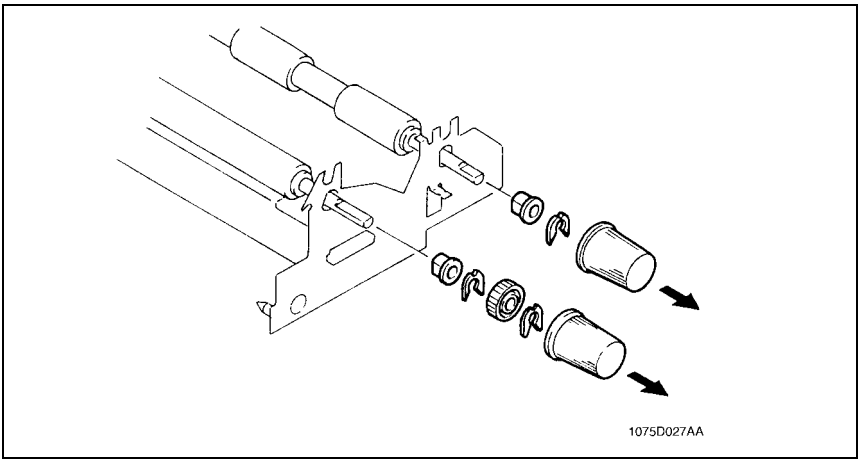
Different types of pressure springs are used for the Transport Roller and Synchronizing Roller. That for the Transport Roller is thinner than that for the Synchronizing Roller. Do not confuse them at reinstallation.



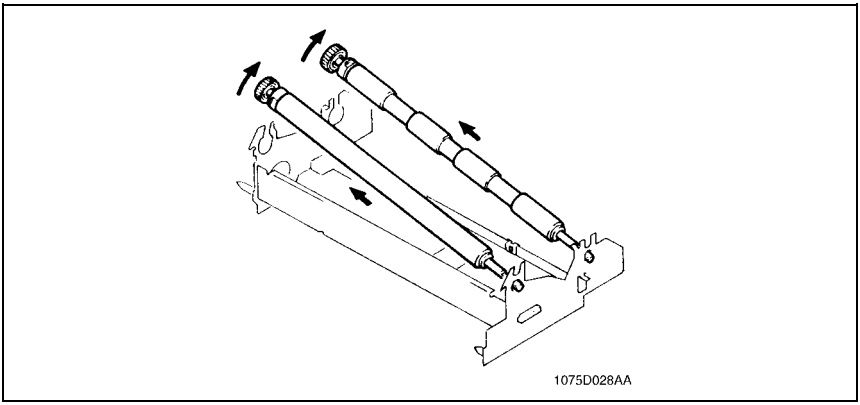
4. Remove four screws, unplug one connector, and remove the Pre-Synchronizing Rollers Guide Plate.
5. Remove five screws, unplug one connector, and remove the Pre-Transport Rollers Guide Plate.



6. Remove the M4 Misfeed Removal Knob and E-ring and pull out the bushing for the Lower Transport Roller.
7. Remove the M2 Misfeed Removal Knob, gear, and E-ring and pull out the bushing for the Lower Synchronizing Roller.



8. Remove the Lower Transport Roller by sliding it in the direction shown.
9. Remove the Lower Synchronizing Roller by sliding it in the direction shown.



(9) Removal of the Suction Belts

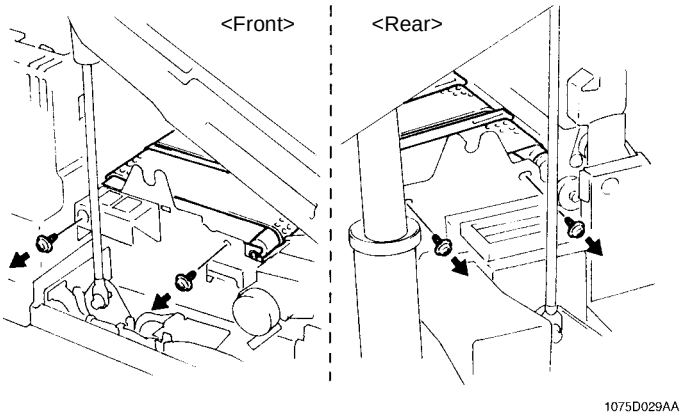
1. Open the Front Lower Door and release and swing up the Upper Half of the copier.
2. Remove two screws and the Image Transfer Cover.
3. Remove four screws and the Suction Unit.

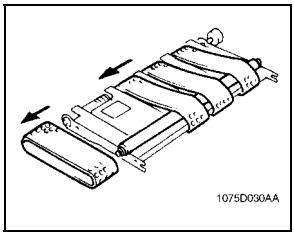
TIP

Remove the Fusing Unit first, which will make the job easier.

NOTE

At reinstallation, press the Suction Unit against the Suction Base Plate.

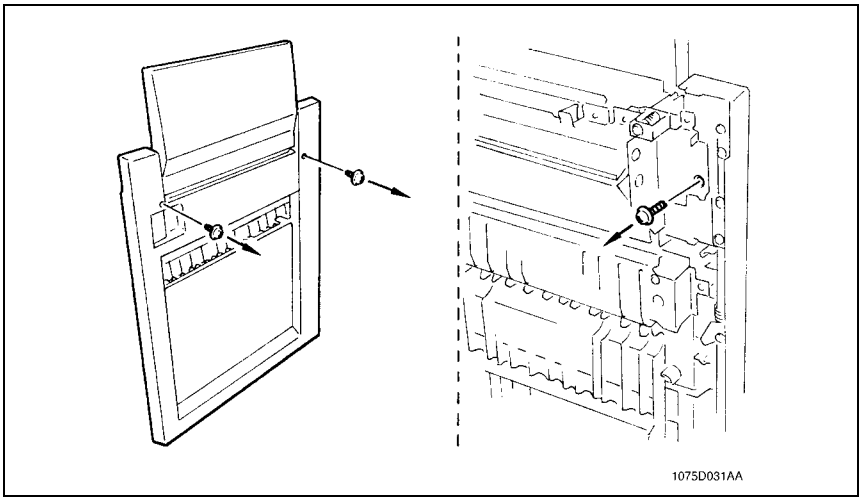


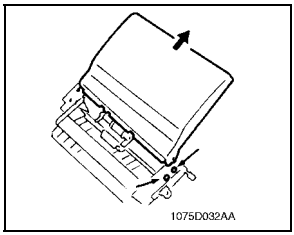


4. Work the Suction Belts Driven Roller off the Suction Unit Frame to remove the Suction Belts.

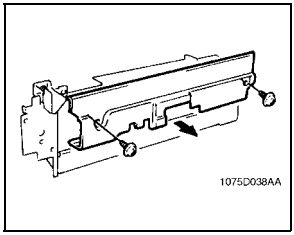
(10) Disassembly of the Multi Bypass Unit

1. Remove the Right Door (Multi Bypass Unit).
2. Remove the three screws shown and the Multi Bypass Unit.



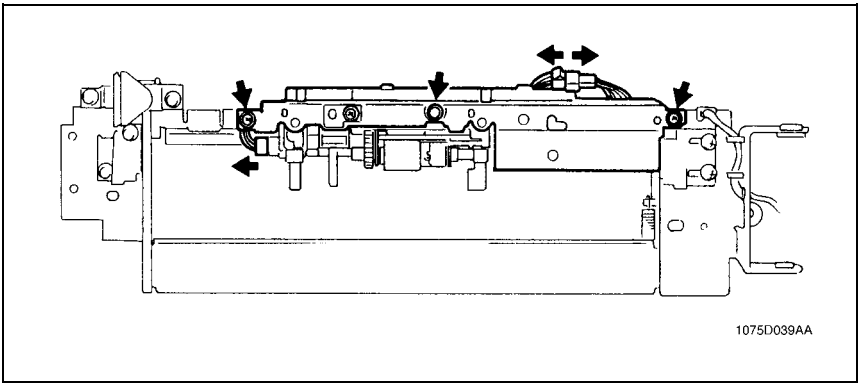


3. Loosen two screws, slide the pivot shaft to the side and remove the Multi Bypass Table.

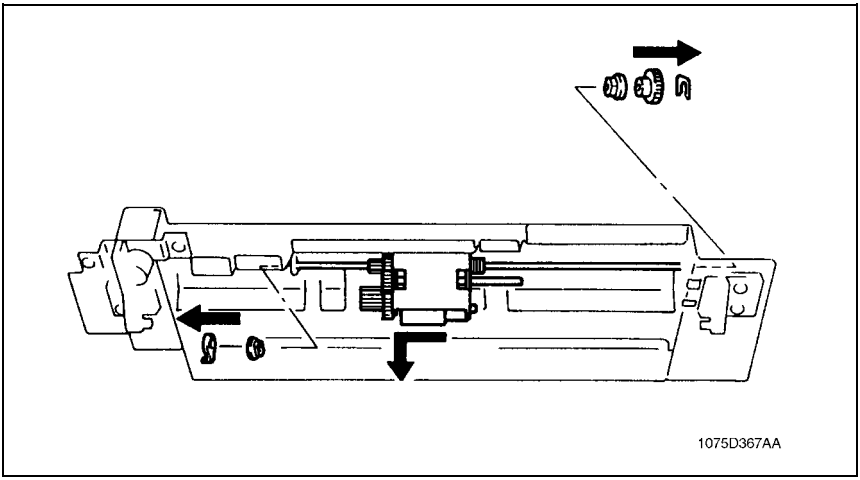


4. Remove two screws and the Manual Feed Paper Pick-Up Solenoid Assy Cover.

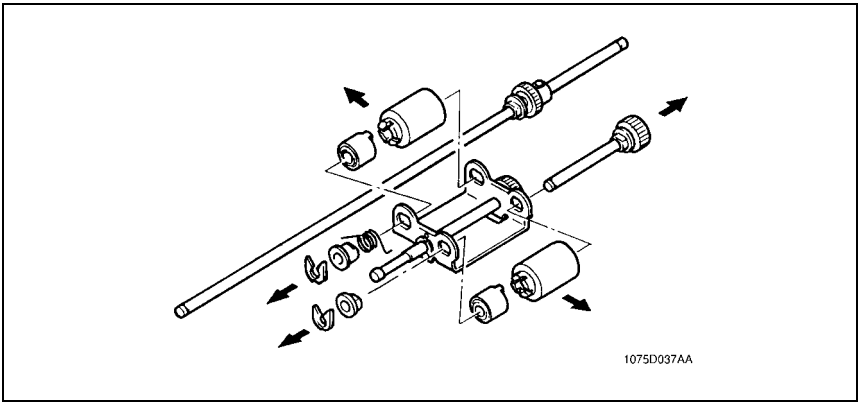
5. Remove three screws, unplug two connectors, and remove the Manual Feed Paper Pick-Up Solenoid Assy.

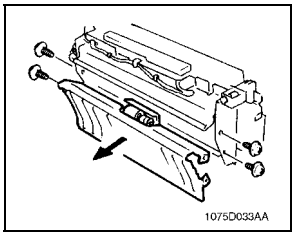


6. Remove the Paper Take-Up Roll Assy by removing the two C-clips, gear, and bushings shown.

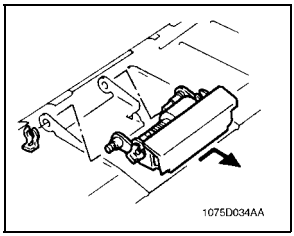


7. Disassemble the Paper Take-Up Roll Assy.

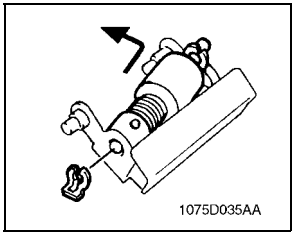




8. Remove four screws and the Guide Plate.

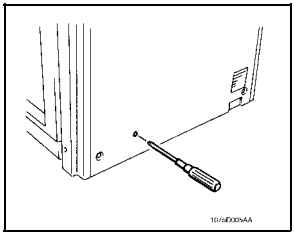


9. Remove the Paper Separator Roll pressure spring.
10. Remove the C-clip and Paper Separator Assy.



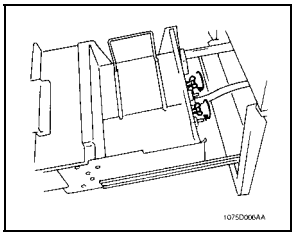
11. Remove the C-clip, slide the bushing off, and remove the Paper Separator Roll Assy.

(11) Removal of the 3rd Drawer



1. Press the Paper Descent Key and slide out the 3rd Drawer.

* If pressing the Paper Descent Key does not allow you to slide out the 3rd Drawer, insert a screwdriver or similar object through the hole in the Rear Lower Cover and unlock the drawer.

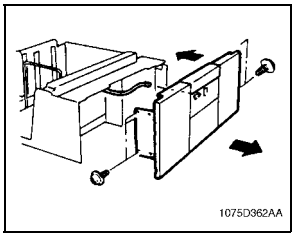


2. Remove four screws on the Slide Rails and pull the 3rd Drawer out to the front.
3. Unplug one connector, loosen two thumbscrews to remove the Connector Board Assy, and remove the 3rd Drawer.

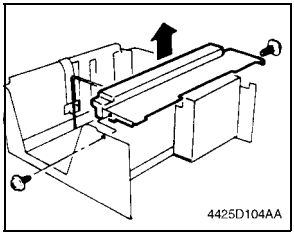
NOTE

Use care not to let the 3rd Drawer come off the Slide Rails.

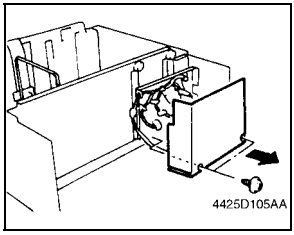
(12) Removal of the 3rd Drawer Wires



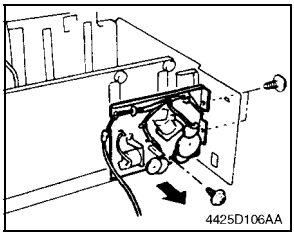
1. Remove the 3rd Drawer.
2. Remove four screws, unplug one connector, and remove the Cover Assy.



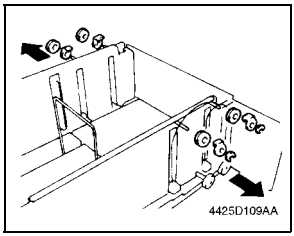
3. Remove two screws and the inner cover.



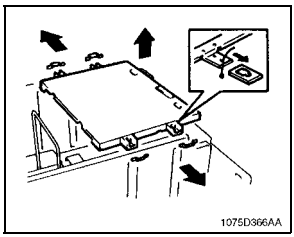
4. Remove two screws and the drive cover.



5. Remove three screws and the drive base plate.



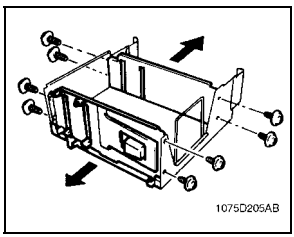
6. Remove four E-rings, four pulley covers and four pulleys.



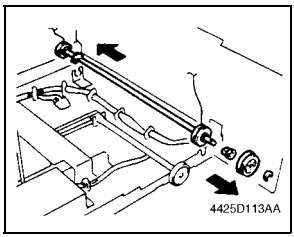
7. Remove four wire holders and the Main Tray.

NOTES

- *Use care not to bend the wire.*
- *Use new wire holders at reinstallation.*

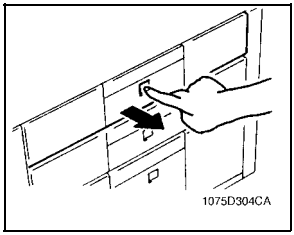


8. Remove four screws each and the Frame Assy at the front and rear.

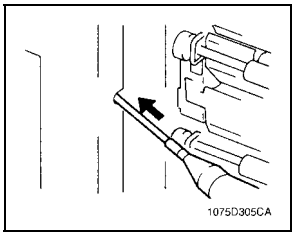


9. Remove the E-ring, slide the bushing off, and remove the Wire Take-Up Pulley Assy.

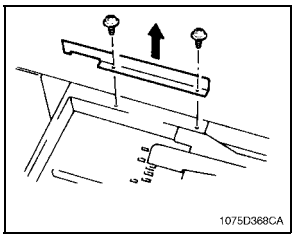
(13) Removal of the Paper Drawer (Inch areas only)



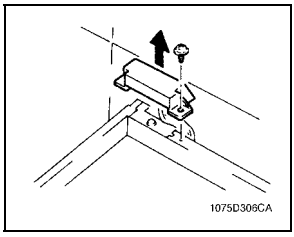
1. Press the Paper Descent Key and slide out the drawer.



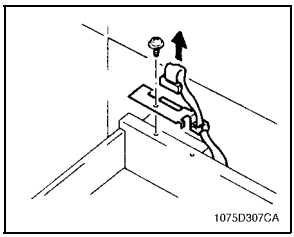
* If pressing the Paper Descent Key does not allow you to slide out the drawer, open the Right Door and push the Lock Release Lever shown in the illustration with a screwdriver or similar object to unlock the drawer.



2. Remove two screws and the metal plate.

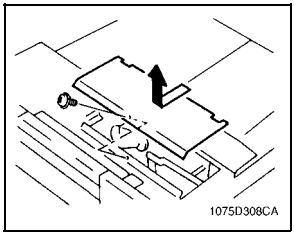


3. Remove one screw and the connector cover.

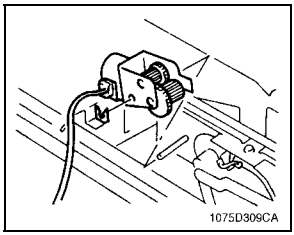


4. Unplug one connector and remove one screw and flat cable mounting bracket.
5. Remove the Front Right Cover, Drawer Stoppers, and the drawer.

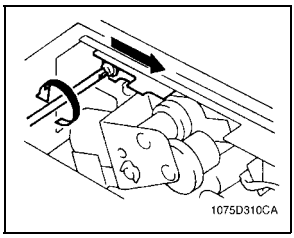
(14) Removal of the Lift-Up Motor (Inch areas only)



1. Slide out the drawer.
2. Remove one screw and the Lift-Up Motor Cover.



3. Unplug one connector.
4. Remove one E-ring and the Lift-Up Motor.

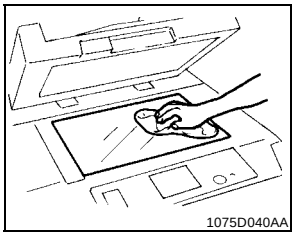


NOTE

If the Lift-Up Motor is replaced with a new one, loosen the screw and, while lightly pressing the Lift-Up Motor fixing bracket in the direction of the arrow, tighten the screw.

2-4. OPTICAL SECTION

(1) Cleaning of the Original Glass

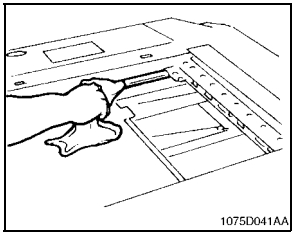


1. Wipe clean the Original Glass with a soft cloth.

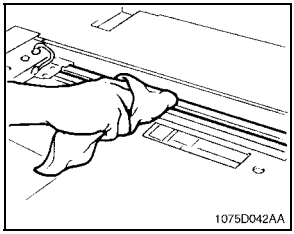
NOTE

The surface of the Original Glass is coated with conductive material. Do not use a wax-based detergent.
An alcohol-dampened cloth may be used if the glass is seriously contaminated.

(2) Cleaning of the Scanner Rails/Bushings



1. Remove the Original Glass.
2. Using a soft cloth, wipe clean the Scanner Rails/Bushings (at the front).

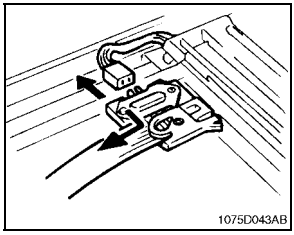


3. Using a soft cloth, wipe clean the Scanner Rails/Bushings (in the rear).

NOTE

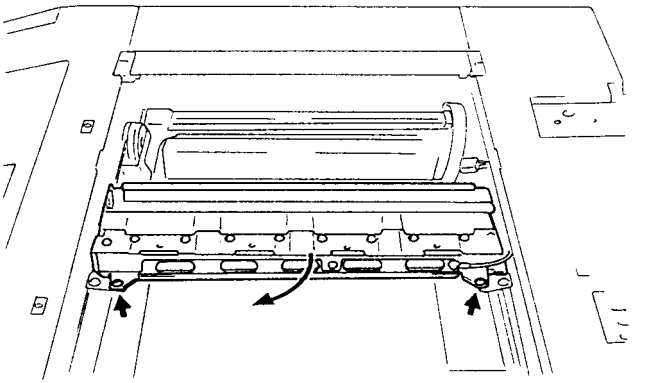
Apply lubricant to the Scanner Rails/Bushings after they have been cleaned.

(3) Removal of the Scanner

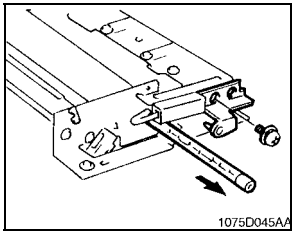


1. Remove the Original Glass.
2. Remove the Exposure Lamp flat cable holder.
3. Unplug one connector.

4. Remove two screws shown and turn the Scanner sideways to remove the Scanner from the copier.



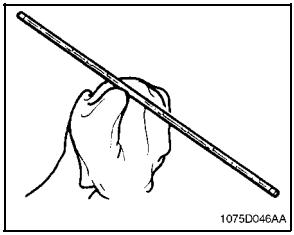
(4) Cleaning of the Exposure Lamp



1. Remove the Scanner.
2. Remove one screw and the Exposure Lamp terminal.
3. Remove the Exposure Lamp.

NOTE

When the Exposure Lamp has been cleaned or replaced, be sure to make the "adjustment of exposure level in the Auto Exposure mode." (See p. D-90.)

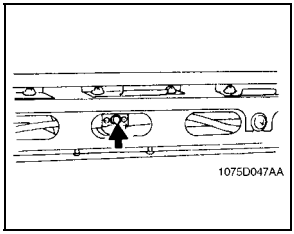


4. Using a soft cloth dampened with alcohol, clean the lamp by gently wiping its surface in one direction.

NOTE

When reinstalling the lamp, point the protruding navel of the lamp toward the opening in the Lamp Reflector so that the protruding navel will not hit against the Lamp Reflector.

(5) Resetting of the Exposure Lamp Thermal Switch

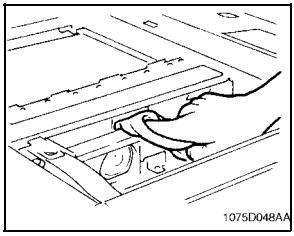


If the Exposure Lamp Thermal Switch is operated to cut off the circuit, press the red reset button shown, which resets the Exposure Lamp Thermal Switch.

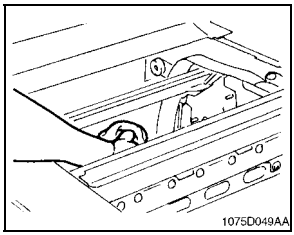
NOTE

Perform this step after unplugging the power cord.

(6) Cleaning of the 1st, 2nd, and 3rd Mirrors and Original Size Detecting Sensors



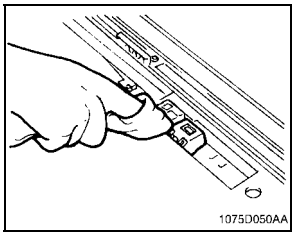
1. Remove the Original Glass.
2. Wipe clean the 1st Mirror with a soft cloth.



3. Wipe clean the 2nd and 3rd Mirrors with a soft cloth.

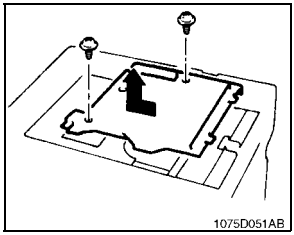
NOTE

After the 1st, 2nd, and 3rd Mirrors have been cleaned, make the "adjustment of exposure level in the Auto Exposure mode." (See p. D-90.)

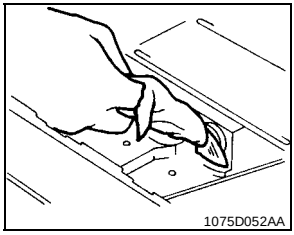


4. Clean the Original Size Detecting Sensors with a soft cloth.

(7) Cleaning of the Lens and 4th and 5th Mirrors

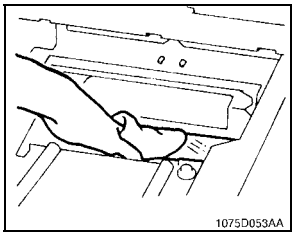


1. Remove the Original Glass.
2. Remove two screws and the Optical Cover.



3. Wipe clean the Lens with a soft cloth.

* If the Lens is hard to clean, move it in the enlargement or reduction direction as necessary.

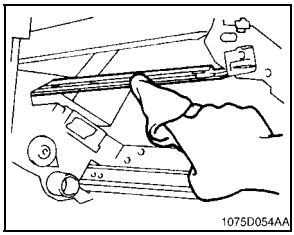


4. Wipe clean the 4th and 5th Mirrors with a soft cloth.

NOTE

After the Lens and 4th and 5th Mirrors have been cleaned, make the "adjustment of exposure level in the Auto Exposure mode." (See p. D-90.)

(8) Cleaning of the 6th Mirror and Image Erase Lamp

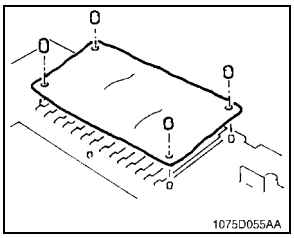


1. Open the Front Lower Door, slide out the PC Unit and release and swing up the Upper Half of the copier.
2. Wipe clean the 6th Mirror and Image Erase Lamp with a soft cloth.

NOTE

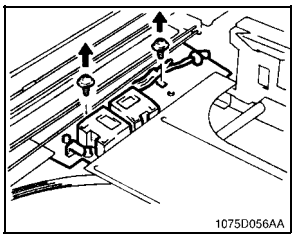
After the 6th Mirror has been cleaned, make the "adjustment of exposure level in the Auto Exposure mode." (See p. D-90.)

(9) Replacement of the Cooling Fan Filter

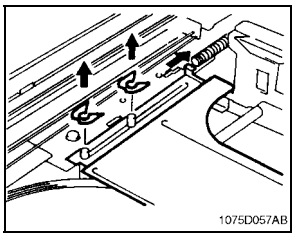


1. Remove the Left Upper Cover.
2. Remove four rubber stoppers and replace the Cooling Fan Filter.

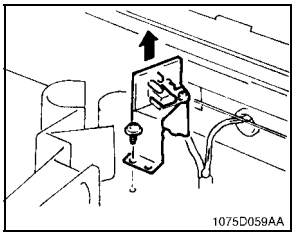
(10) Removal of the Lens Drive Cable



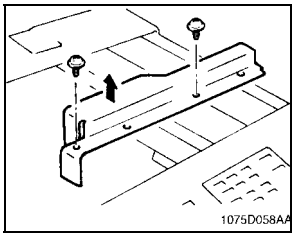
1. Remove the Original Glass and Optical Cover.
2. Remove two screws to free the Original Size Detecting Sensors mounting bracket.



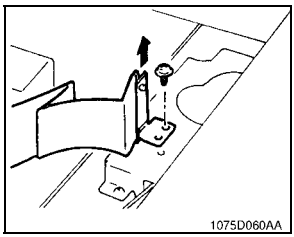
3. Remove one spring, two E-rings, and the Lens Cover.



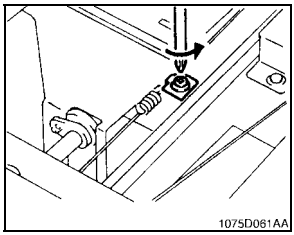
4. Remove one screw and the AE Sensor mounting bracket.



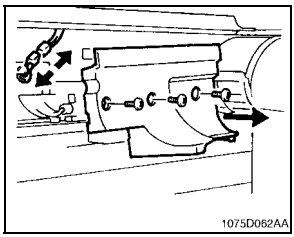
5. Remove two screws and the Lens Drive Cover.



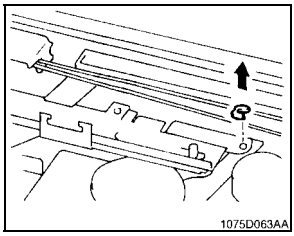
6. Remove one screw and the Light Blocking Mylar mounting bracket.



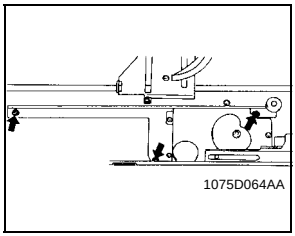
7. Remove one screw that secures the Lens Drive Cable.



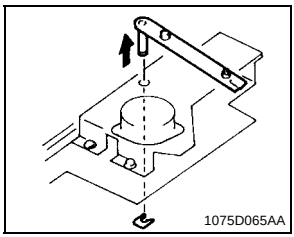
8. Open the Front Upper Door, turn the Toner Bottle 90° and remove three screws and the cover shown.
9. Unplug the connector of the Lens X Direction Drive Motor.



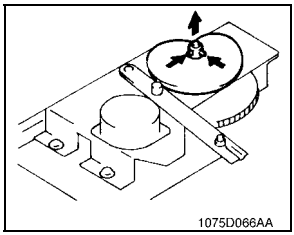
10. Snap off the E-ring that secures the 4th/5th Mirrors Moving Lever.



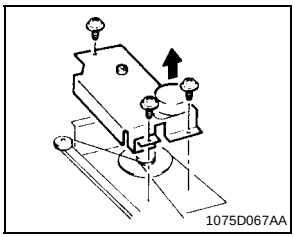
11. Remove three screws and the Lens Drive Motor Assy.



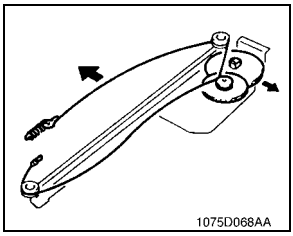
12. Snap off the E-ring and remove the 4th/5th Mirrors Positioning Lever.



13. Loosen the screw that secures the cam and remove the cam.

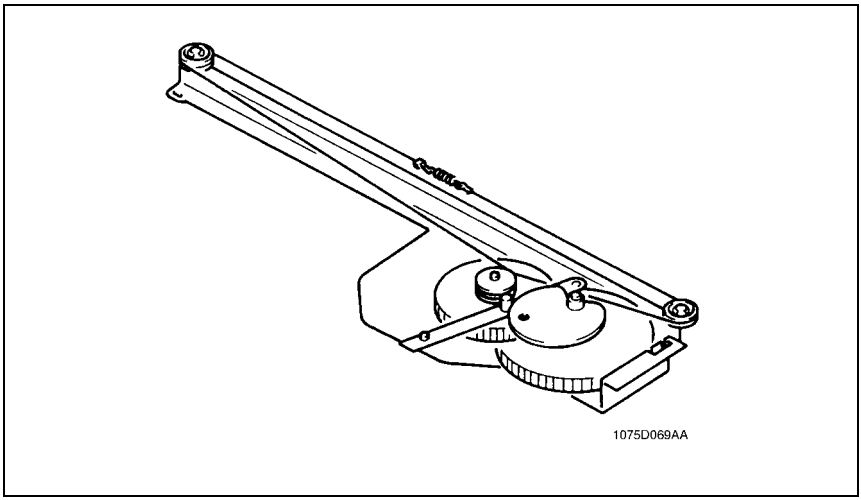


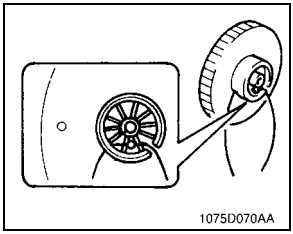
14. Remove three screws and the upper frame.



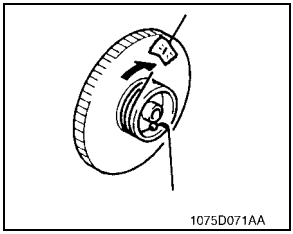
15. Work off the cable and remove the drive gear.

(11) Winding of the Lens Drive Cable





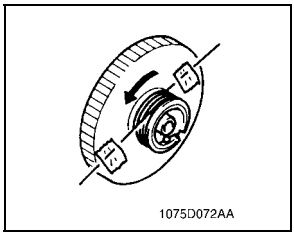
1. Hold the Cable Drive Gear with the bead at the bottom.



2. Wind the length of the cable with a bead on its end four and 1/2 turns clockwise around the Cable Drive Gear, working from the back to the front side. Then, tape it.

NOTE

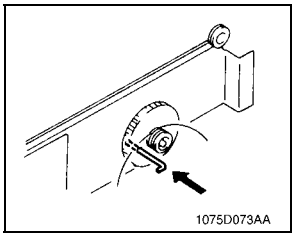
When winding the cable, make sure that no part of the cable rides on the other.



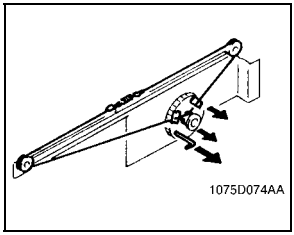
3. Wind the other length of the cable two and 1/2 turns counterclockwise around the Cable Drive Gear, working from the front to back side. Then, tape it.

NOTE

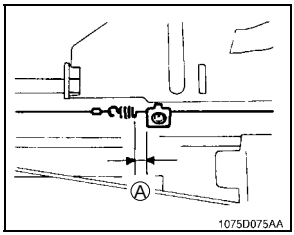
When winding the cable, make sure that no part of the cable rides on the other.



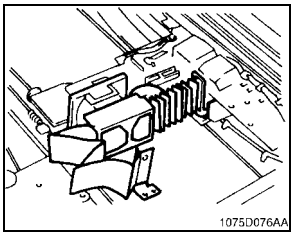
4. Place the Cable Drive Gear onto the lower frame and insert a wrench into the hole to position the gear.



5. Wind both lengths of the cable around the pulleys and pull the spring to connect the two lengths.
6. Remove the wrench and peel off two pieces of tape.
7. Mount the Lens Drive Motor Assy by reversing the order of disassembly. Do not, however, secure the cam into position.

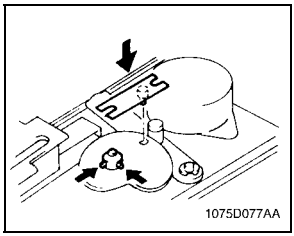


* When securing the cable to the Lens Base Plate, make sure that dimension A shown measures 4 ±1 mm.



8. Turn ON the Power Switch to bring the Lens to the full size position.

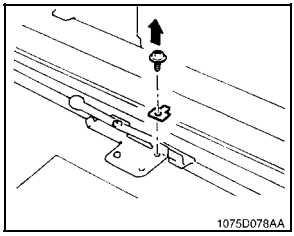
> ***NOTE***
>
> *Be careful, the Scanner moves when the Power Switch is turned ON.*



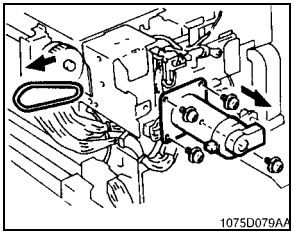
9. Install the 4th/5th Mirrors Positioning Jig and, when the hole in the cam is aligned with the pin on the jig, tighten the set screw.

> ***NOTE***
>
> *From a safety viewpoint, turn OFF the Power Switch before tightening the set screw that secures the cam.*

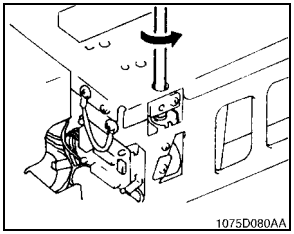
(12) Removal of the Scanner Drive Cables



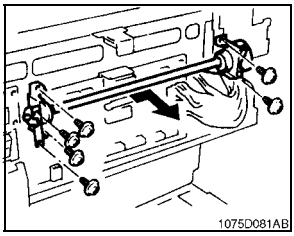
1. Remove the AFR-9, Rear Upper Cover, Upper Rear Cover, Control Panel Unit, Right Upper Cover, Left Upper Cover, Upper Left Cover, and Original Glass.
2. Remove the Scanner.
3. Remove the Scanner positioning screws, one each at the front and rear, and the Scanner fixing bracket.



4. Unplug one connector and remove four screws and the Scanner Motor.
5. Remove the timing belt.

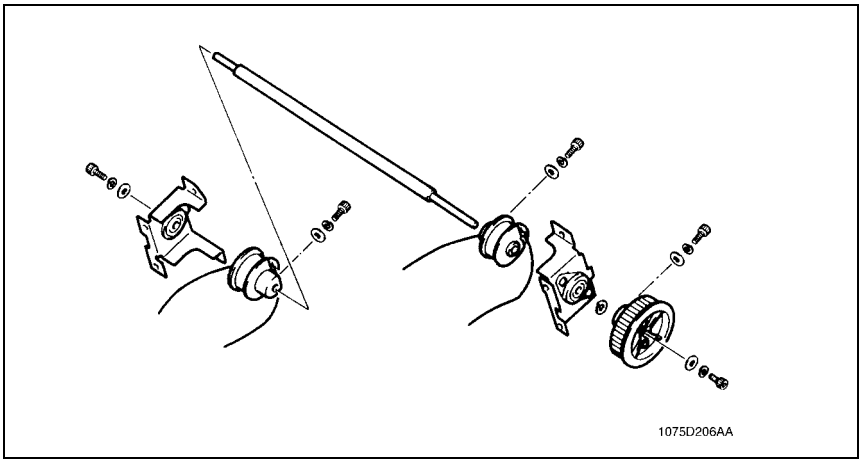


6. Using a flat-blade screwdriver, loosen the spring anchors to unhook the beads of the front and rear Scanner Drive Cables.

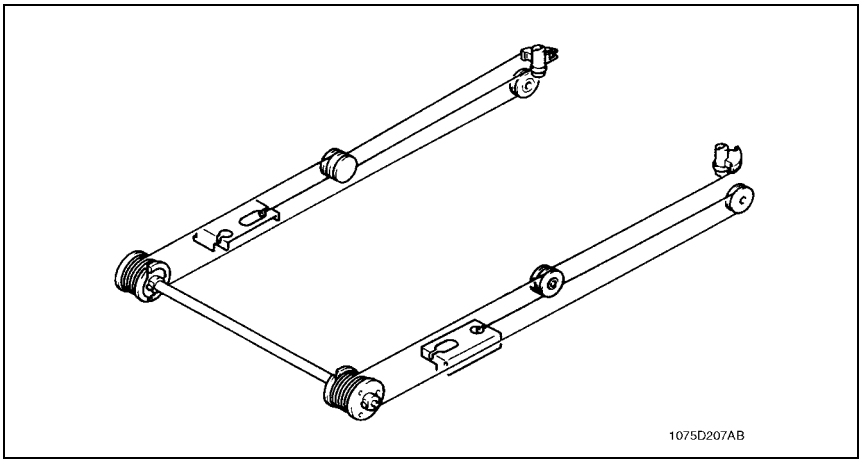


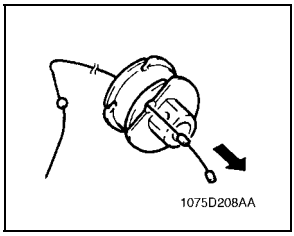
7. Remove six screws. Remove the holding brackets at the front and rear of the Scanner Drive Shaft and the Scanner Drive Shaft Assy.

8. Disassemble the Scanner Drive Shaft Assy as illustrated below.



(13) Winding of the Scanner Drive Cables

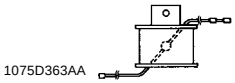


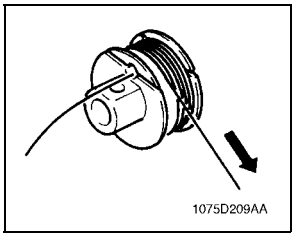


Front

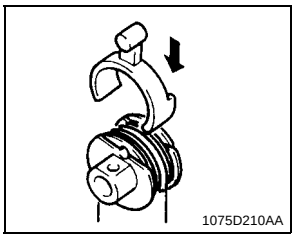
1. Pass the Scanner Drive Cable into the pulley as shown so that the round bead is at the center of the pulley.

<How to Install the Cable>





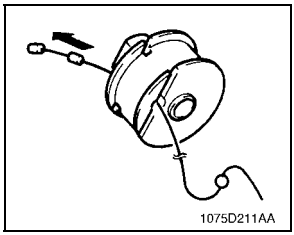
2. Holding the pulley as shown, wind the side of the cable with two fixing beads clockwise six turns around the pulley, working from the back to front side.



3. Wind the shorter length of the cable counterclockwise two turns, working from the front to the back side. Then, slip the Cable Holding Jig onto the pulley.

NOTE

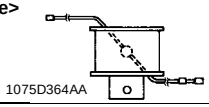
Make sure that no part of the cable rides on the other.

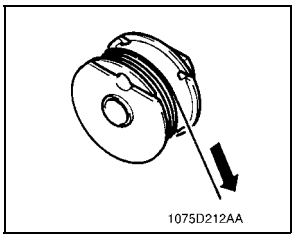


Rear

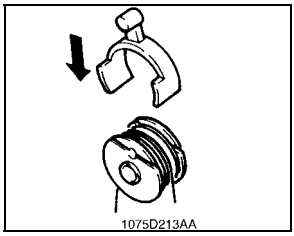
4. Pass the Scanner Drive Cable into the pulley as shown so that the round bead is at the center of the pulley.

<How to Install the Cable>





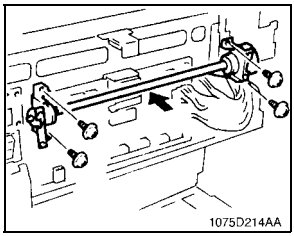
5. Holding the pulley as shown, wind the side of the cable with two fixing beads clockwise six turns around the pulley, working from the back to front side.



6. Wind the shorter length of the cable counterclockwise two turns, working from the front to the back side. Then, slip the Cable Holding Jig onto the pulley.

NOTE

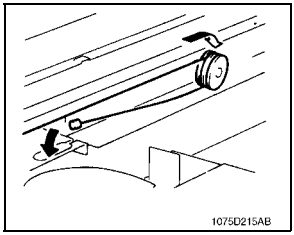
Make sure that no part of the cable rides on the other.



7. Assemble the Scanner Drive Shaft Assy and install it in the copier.

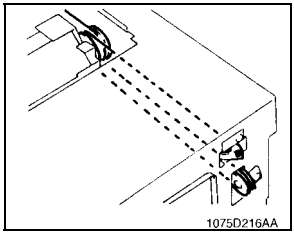
NOTE

When securing the Scanner Drive Shaft Assy, press it against the optical frame.



8. Loop the side of the cable with one fixing bead around the outer pulley for the 2nd/3rd Mirrors Carriage and hook the fixing bead to the adjustable anchor.

* The illustration shows the front side of the copier. The same applies to the rear side.



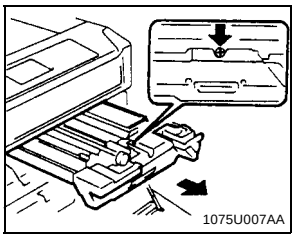
9. Loop the side of the cable with two fixing beads around the pulley on the frame and the inner pulley for the 2nd/3rd Mirrors Carriage and hook the fixing bead to the spring anchor.

* The illustration shows the front side of the copier. The same applies to the rear side.

10. Remove the Cable Holding Jigs.
11. Mount the Scanner Motor and timing belt and make the Scanner Motor timing belt adjustment. (For details, see "ADJUSTMENT.")
12. Mount the Scanner and perform the "Focus-Positioning of the Scanner and 2nd/3rd Mirrors Carriage." (For details, see "ADJUSTMENT.")

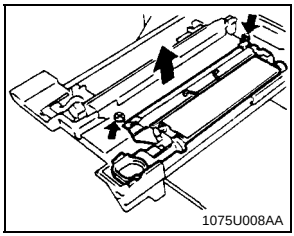
2-5. PC UNIT

(1) Sliding Out the PC Unit



1. Open the Front Lower Door.
2. Loosen one screw and slide out the PC Unit.

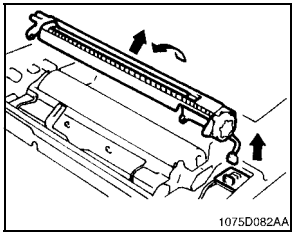
(2) Removal of the Developing Unit



1. Slide out the PC Unit.
2. Loosen two screws and remove the Developing Unit.

*For the Developing Unit, see 2-7. DEVELOPING UNIT.

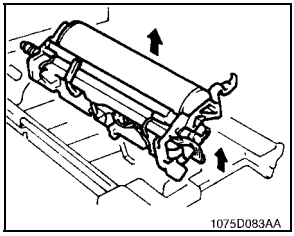
(3) Removal of the PC Drum Charge Corona



1. Remove the Developing Unit.
2. Unplug one connector and remove the PC Drum Charge Corona.

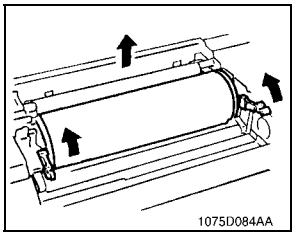
*For the PC Drum Charge Corona, see 2-6. PC DRUM CHARGE CORONA AND IMAGE TRANSFER/PAPER SEPARATOR CORONAS.

(4) Removal of the Cleaning Unit



1. Remove the PC Drum Charge Corona.
2. Unplug one connector and remove the Cleaning Unit.

(5) Replacement of the PC Drum

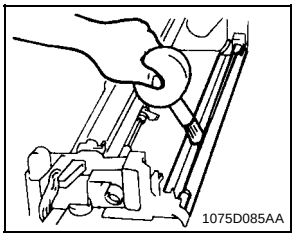


1. Remove the PC Drum Charge Corona.
2. Unlock two PC Drum Lock Levers and remove or replace the PC Drum.

NOTE

When the PC Drum has been replaced, clear the "PC Drum" count of "Port/Option 3/3" available from "Counter" under the Tech. Rep. mode and make the adjustment of exposure level in the Auto Exposure mode.

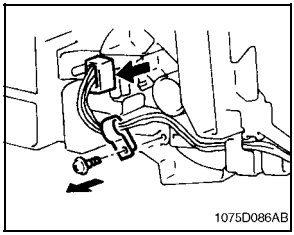
(6) Cleaning of the Pre-Image Transfer Erase Lamp



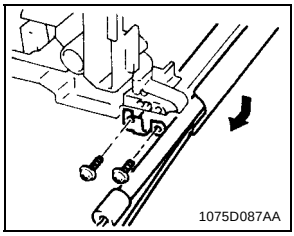
1. Remove the PC Drum.
2. Blow all foreign matter off the Pre-Image Transfer Erase Lamp with a blower brush.

* If the lamp is seriously contaminated, wipe its surface clean of dirt with a soft cloth.

(7) Removal of the Pre-Image Transfer Erase Lamp

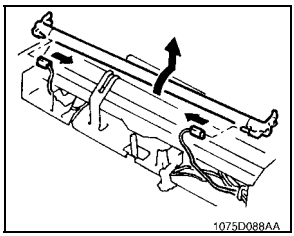


1. Remove the PC Drum and Cleaning Unit.
2. Unplug one connector.
3. Remove one screw and the cord clamp.

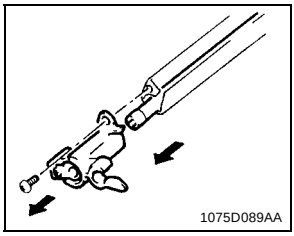


4. Remove two screws from the lower guide frame and slide out the Pre-Image Transfer Erase Lamp.

(8) Removal of the Main Erase Lamp

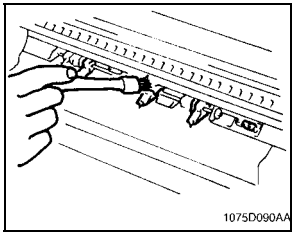


1. Remove the PC Drum.
2. Unplug two connectors and remove the Main Erase Lamp holder.



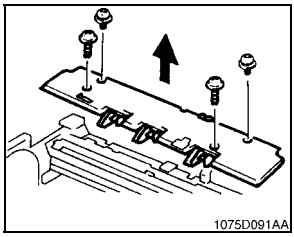
3. Remove one screw and the Main Erase Lamp.

(9) Cleaning of the Pre-Cleaning Erase Lamp, Toner Antispill Seal, AIDC Sensor, and PC Drum Paper Separator Fingers

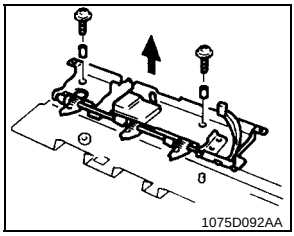


1. Remove the PC Drum.
2. Using a brush or soft cloth, clean the Pre-Cleaning Erase Lamp, Toner Antispill Seal, AIDC Sensor, and PC Drum Paper Separator Fingers.

(10) Disassembly of the PC Drum Paper Separator Fingers Assy

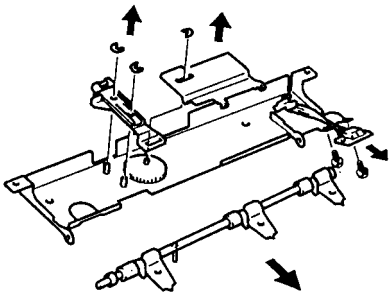


1. Remove the PC Drum.
2. Remove the Cleaning Unit.
3. Turn over the Cleaning Unit, remove four screws, unplug one connector, and remove the PC Drum Paper Separator Fingers Assy.



4. Remove two screws and PC Drum Paper Separator Fingers mounting bracket.

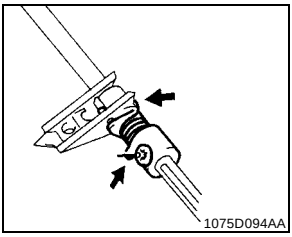
5. Remove the PC Drum Paper Separator Fingers and AIDC Sensor UN9 as illustrated below.



1075D093AB

NOTE

During removal and reinstallation of the PC Drum Paper Separator Fingers, use care not to damage the tips of the fingers (scratches, bend, etc.).
Be also careful not to hurt yourself with the tips of the fingers.



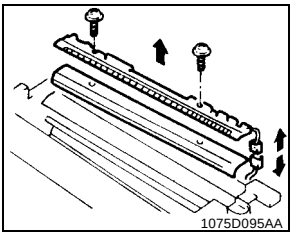
1075D094AA

6. When reinstalling the PC Drum Paper Separator Fingers, be sure to rehook the torsion coil spring correctly as shown. After reinstallation, check that the fingers move smoothly.

NOTE

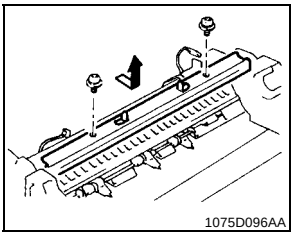
Whenever the PC Drum Paper Separator Fingers have been removed and reinstalled, be sure to adjust the position of the PC Drum Paper Separator Fingers. For details, see "ADJUSTMENT."

(11) Removal of the Toner Antispill Seal and Pre-Cleaning Erase Lamp

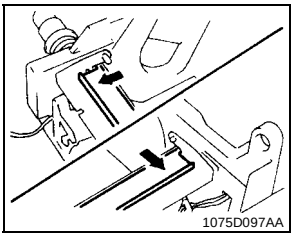


1. Remove the PC Drum Paper Separator Fingers Assy.
2. Remove two screws shown.
3. Unplug one connector and remove the Toner Antispill Seal and Pre-Cleaning Erase Lamp.

(12) Replacement of the Cleaning Blade



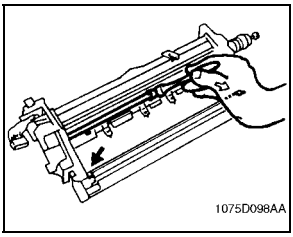
1. Remove the PC Drum and Main Erase Lamp.
2. Remove two screws and the Cleaning Blade and replace it.



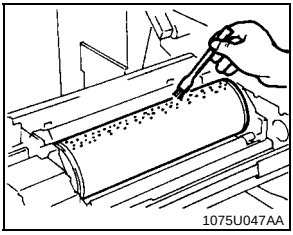
NOTE

When installing the Cleaning Blade, press it against the mounting bracket.

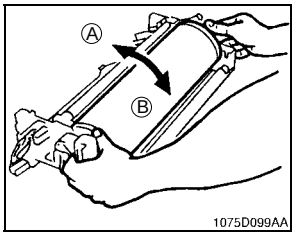
When the Cleaning Blade has been replaced, perform the following steps.



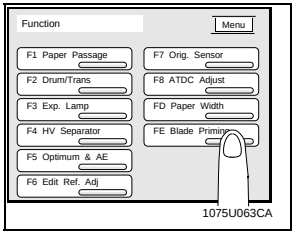
1. Before installing the PC Drum, apply lubricant (shipped with the new Cleaning Blade) to the cleaning felt pads at both ends of the PC Drum. Also apply toner to the entire surface of the Cleaning Blade.



2. Install the PC Drum and apply a thin coat of toner to the surface of the PC Drum.

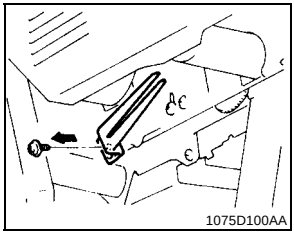


3. Holding onto both ends of the PC Drum, turn the PC Drum 1/2 turn in the direction of arrow A, then turn it one turn in the direction of arrow B.



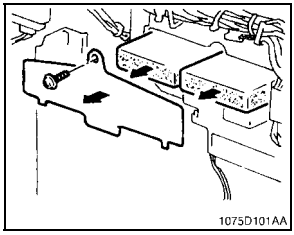
4. Reinstall the PC Unit and run the FE operation (Blade Priming) of "Function" available from the Tech. Rep. mode.

(13) Replacement of the PC Ground Plate



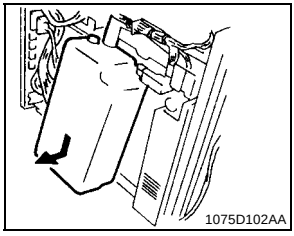
1. Open the Front Lower Door and release and swing up the Upper Half of the copier.
2. Remove one screw and the PC Ground Plate. Replace the PC Ground Plate.

(14) Replacement of the Ozone Filter



1. Remove the Rear Lower Cover.
2. Remove one screw and the Ozone Filter Cover.
3. Pull out the Ozone Filter and replace it.

(15) Replacement of the Toner Collecting Bottle



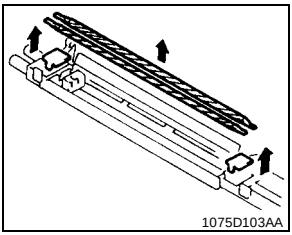
1. Remove the Rear Lower Cover.
2. Remove the Toner Collecting Bottle and replace it.

NOTE

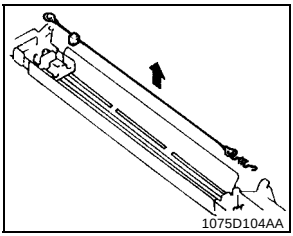
When the Toner Collecting Bottle has been replaced, clear the "Toner Collect" count of "Consumable" available from "Counter" under the Tech. Rep. mode.

2-6. PC DRUM CHARGE CORONA AND IMAGE TRANSFER/PAPER SEPARATOR CORONAS

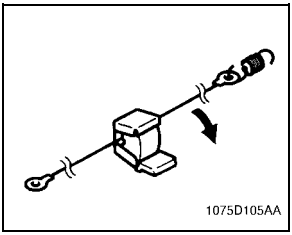
(1) Replacement of the PC Drum Charge Corona Wires and Wire Cleaner



1. Remove the PC Drum Charge Corona.
2. Remove the Grid Meshes.
3. Remove the holder covers at the front and rear.

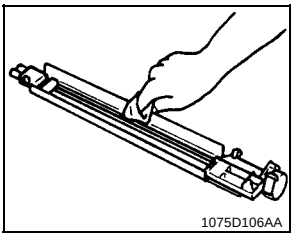


4. Extend the corona wire spring and remove the corona wire and wire cleaner.



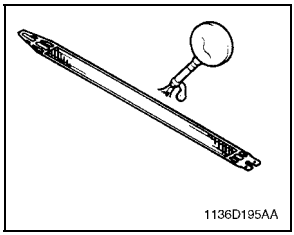
5. Unlock the wire cleaner lock and remove the wire cleaner.

(2) Cleaning of the PC Drum Charge Corona Housing



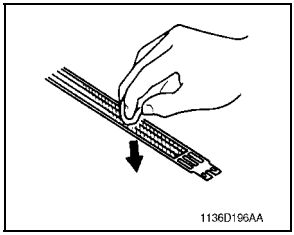
1. Using a soft cloth dampened with alcohol, wipe clean the corona housing.

(3) Cleaning and Replacement of the Grid Mesh

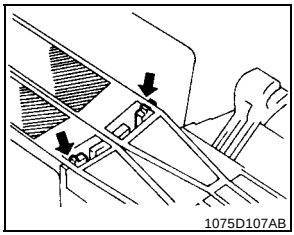


1. Blow all foreign matter off the Grid Mesh with a blower brush.

> ***NOTE***
>
> *If the blower brush is not effective in cleaning the Grid Mesh, use a soft cloth dampened with alcohol to clean serious contamination.*

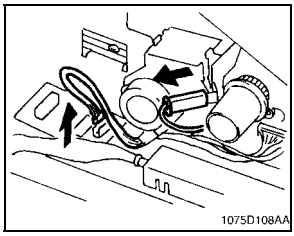


> ***NOTE***
>
> *Place the Grid Mesh on a flat surface and sweep the cloth along the mesh.*
> *Do not touch the cleaned Grid Mesh with bare hands.*

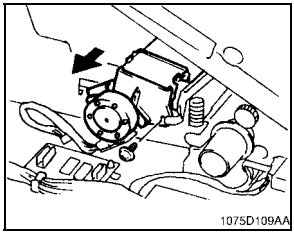


2. When installing the Grid Mesh, make sure that it does not ride on the protrusions indicated by the arrows.

(4) Removal of the Image Transfer/Paper Separator Coronas

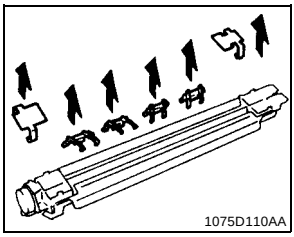


1. Open the Front Lower Door.
2. Remove the Image Transfer Cover.
3. Unplug the connector of the Pre-Image Transfer Guide Plate and that of the Image Transfer/Paper Separator Charge Wire Cleaning Motor.

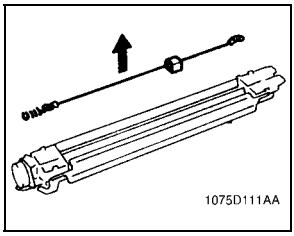


4. Remove one screw and the Image Transfer/Paper Separator Coronas.

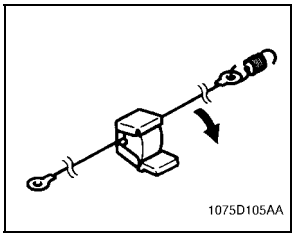
(5) Replacement of the Image Transfer/Paper Separator Corona Wires and Wire Cleaners



1. Remove the Image Transfer/Paper Separator Coronas.
2. Remove the holder covers at the front and rear and four paper guides.

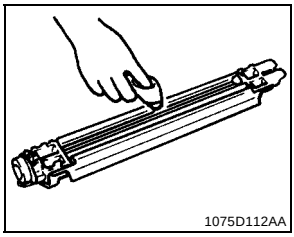


3. Extend the corona wire spring and remove the corona wire and wire cleaner.



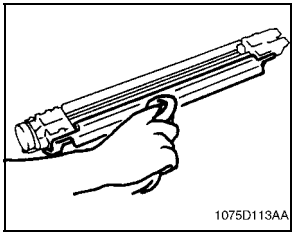
4. Unlock the wire cleaner lock and remove the wire cleaner.

(6) Cleaning of the Image Transfer/Paper Separator Coronas Housing



1. Using a soft cloth dampened with alcohol, wipe the housing clean of dirt.

(7) Cleaning of the Pre-Image Transfer Guide Plate



1. Using a soft cloth dampened with alcohol, wipe the guide plate clean of dirt.

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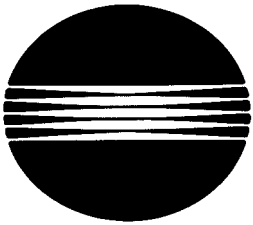
EP6000

SWITCHES ON PWBs, TECH. REP. MODE



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1 PRECAUTIONS FOR HANDLING THE PWBs

1-1. Precautions for Transportation and Storage

a) Before transporting or storing the PWBs, put them in protective conductive cases or bags so that they are not subjected to high temperature (they are not exposed to direct sunlight.)
b) Protect the PWBs from any external force so that they are not bent or damaged.
c) Once the PWB has been removed from its conductive case or bag, never place it directly on an object that is easily charged with static electricity (carpet, plastic bags, etc.).
d) Do not touch the parts and printed patterns on the PWBs with bare hands.

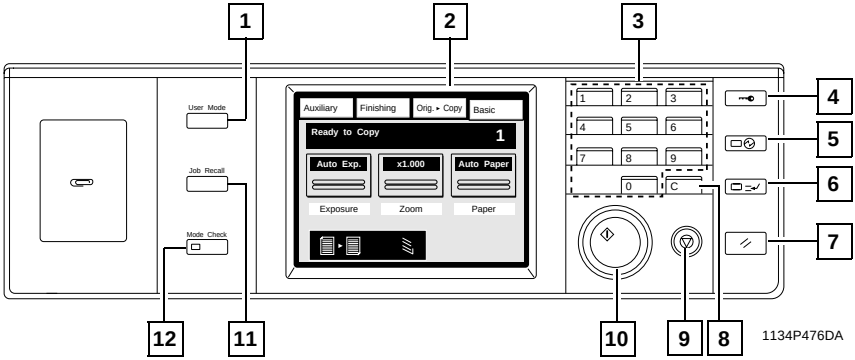
1-2. Precautions for Replacement/Inspection

a) Whenever replacing the PWB, make sure that the power cord of the copier has been unplugged.
b) When the power is on, the connectors must not be plugged in or unplugged.
c) Use care not to strap the pins of an IC with a metal tool.
d) When touching the PWB, wear a wrist strap and connect its cord to a securely grounded place whenever possible. If you cannot wear a wrist strap, touch the metal part before touching the PWB to discharge static electricity.

2 CONTROL PANEL KEYS AND TOUCH PANEL

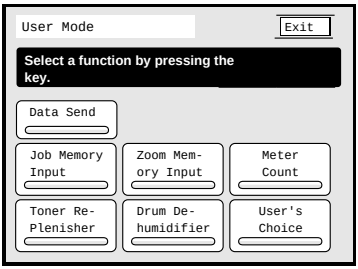
* For more details, see the "Operator's Manual" shipped together with the copier.

2-1. Control Panel Keys



1 User Mode Key

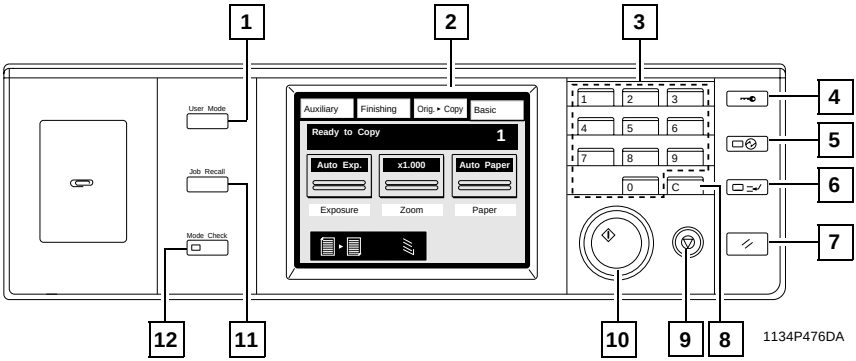
- Shows the User Mode setting screen on the Touch Panel. It looks like as follows.



1134P359CA

Data Send *1	Transmits the copier condition to the center when a DT-103 is installed on the copier.
Job Memory Input	Stores in memory up to 10 different, frequently used copying-job programs and recalls them later as necessary. If "Copy Track" has been turned ON in the "Administrator Mode" of User's Choice, five more jobs can be stored in memory for each account (max. 140 jobs).
Zoom Memory Input	Stores in memory up to three different, frequently used zoom ratios.
Meter Count	Allows for checking the total count of each of the four different counters - Total, Size, 2-Sided Total, and 2-Sided Size.
Toner Replenisher	Regains the normal image density quickly. If the image density is sufficiently high, toner is not replenished, but only mixed.
Drum Dehumidifier	Dries the surface of the PC Drum, preventing condensation. (The cycle lasts for about 3 min.)
User's Choice	Allows for selecting the default settings according to the user's own needs.

*1: Except the U.S.A. and Canada



2 Touch Panel

- A large liquid-crystal display is used for greater ease of operation.

3 10-Key Pad

- Sets the number of copies to be made, zoom ratio, paper size, access number, and other numeric data including that for the Tech. Rep. mode.

4 Access Mode Key

- Enables and disables a copy cycle if "Copy Track" has been turned ON of User's Choice.

5 Energy Saver Key

- Sets the copier into the Energy Saver mode, turning OFF all control panel indicators except the Start Key and Energy Saver Key.

6 Interrupt Key

- Interrupts a current job with a different one or restores the copier to the previous job.

7 Panel Reset Key

- Sets the copier into the initial mode, clearing all settings made previously on the control panel.

8 Clear Key

- Clears the number of copies, zoom ratio, and other data including the counter reading.
- Ejects an original fed previously onto the Original Glass by the Duplexing Document Feeder.

9 Stop Key

- Stops a multi-copy cycle and a Test mode operation.
- Used also in combination with other keys to enter the Adjust mode. (With the Tech. Rep. Mode screen on the Touch Panel, press the Stop Key and then the Start Key, in that order.)

10 Start Key

- Starts a multi-copy cycle and a Test mode operation.
- Used also in combination with other keys to enter the Adjust mode. (With the Tech. Rep. Mode screen on the Touch Panel, press the Stop Key and then the Start Key, in that order.)

11 Job Recall Key

- Selects the Job Recall screen, on which the user can recall or check a copying-job program previously stored in memory.

12 Mode Check Key

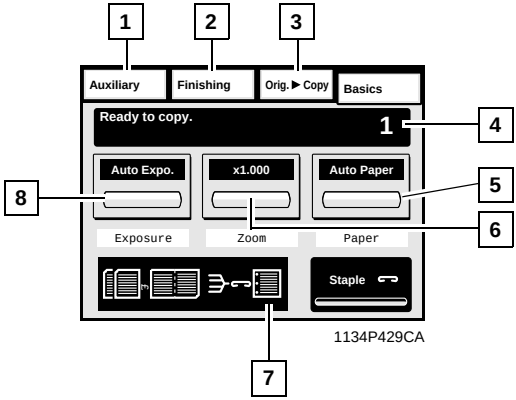
- Selects the Mode Check screen
- From this screen, the user can access the setting screen of a particular function and change or cancel the setting as necessary.

2-2. Explanation of the Touch Panel

- The screen shown on the Touch Panel is classified into the four types: the Basic, Warning, User Mode, and Tech. Rep. Mode screens.
- Following is the detailed explanation of what is shown on the Basic and Warning screens.

(1) Basic Screen

- The Basic screen is the initial screen that appears when the power is turned ON, the control panel is reset, or auto clear function is activated.



1 Auxiliary Key

- When the Auxiliary key is touched, the Auxiliary functions menu screen appears, allowing the operator to select either Cover, Page Insertion, OHP Interleaving, Book Copy, File Margin, or Edge/Frame Erase.
- The functions "Cover" and "Page Insertion" appear only if the copier is equipped with an AFR-9.

2 Finishing Key

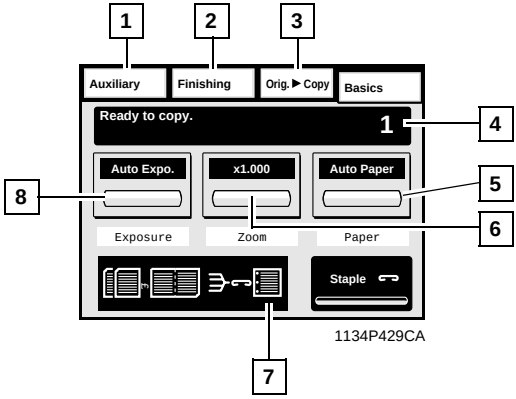
- When the Finishing key is touched, a screen appears that allows the operator to select the finishing type, either Non-Sort, Sort, Sort-and-Staple, Group, Hole Punch, or Manual Staple.
- The functions other than Non-Sort appear only when the copier is equipped with a Sorter or Staple Sorter.

3 Orig. ▶ Copy Key

- When the Orig. ▶ Copy key is touched, a screen appears that allows the operator to set the original ▶ copy type.

4 Message Display

- Shows the current copier status, operating instructions or caution, and other data including the number of copies selected.



5 Paper Key

- When the Paper key is touched, a screen appears that allows the operator to select the paper size.
- The graphic symbol " [paper] " appears on the paper size key when the corresponding drawer runs out of paper.

6 Zoom Key

- When the Zoom key is touched, a screen appears that allows the operator to select the zoom ratio. The functions available on the screen are Auto Size, fixed ratios, Zoom Up/Down, and User Set (for 10-Key Pad input and zoom memory).

7 Set Function Display

- Shows graphic representations of functions set other than the initial ones, including the Orig. ▶ Copy and Finishing types.

8 Exposure Key

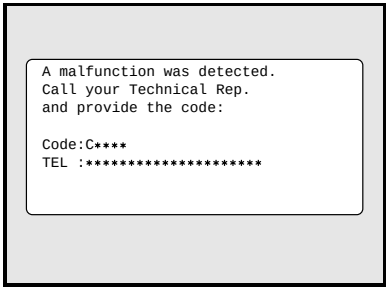
- When the Exposure key is touched, a screen appears that allows the operator to select the image density. Available function keys are the Auto exposure mode key and manual exposure setting keys.

(2) Warning Screen

- The warning screen may be a malfunction display, error display, warning display, or a caution display.
- Here are examples to show what kind of information each display gives.

<Malfunction Display>

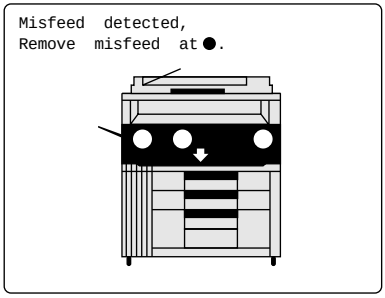
A malfunction display is given when trouble occurs which cannot be corrected by the user and requires remedial action by the Tech. Rep. (For example, a malfunction that can be identified with a specific code.)



1134M039AA

<Error Display>

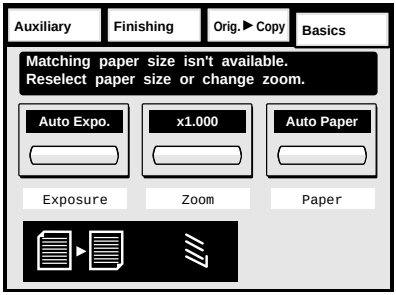
An error display is given when trouble occurs which can be corrected by the user. (For example, a door or option left loose and a paper misfeed.)



1075O162CA

<Warning Display>

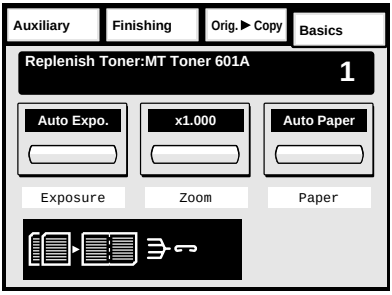
A warning display is given when any further copier operation will not be possible, or only faulty results will come out, due to erroneous panel settings or other cause. (For example, unmatched paper size in Auto Paper mode.)



1134M038AA

<Caution Display>

A caution display is given when, though further copier operation will be possible, it could result in a malfunction. (For example, a toner-empty condition.)

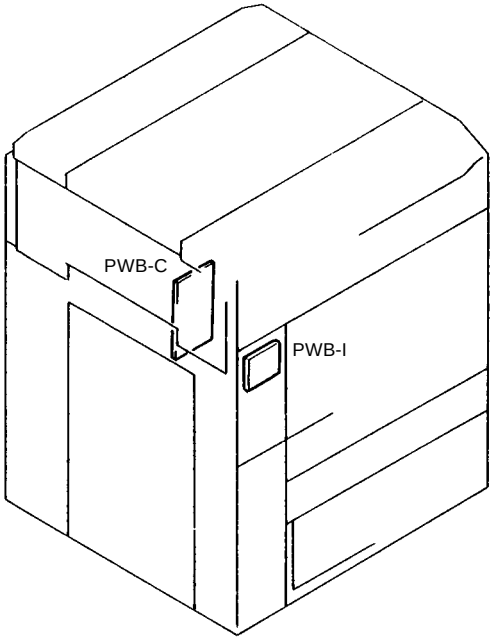


1075S001CA

Note: For the European market, the toner is MT Toner 601B.

3 FUNCTIONS OF SWITCHES AND VARIABLE RESISTORS ON PWBs

3-1. PWB Locations



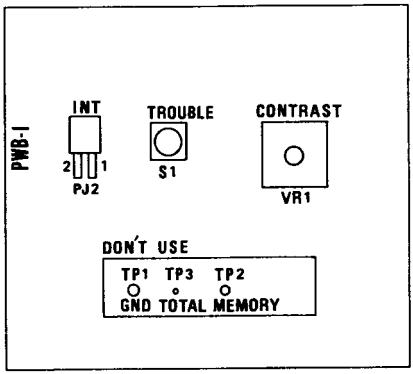
1075S009AA

3-2. Power Supply Board (PWB-C)

- When the DT-103 is fitted to the copier, this switch is used to keep the power (DC5V) supplied to the DT-103 if the Power Switch is turned OFF.

S1C	Description	Initial Setting
Position A	DC5V is shut off when the Power Switch is turned OFF.	*
Position B	DC5V is supplied if the Power Switch is turned OFF.	

3-3. Tech. Rep. Settings Switches Board (PWB-I)



Symbol	Name	Description
S1	Trouble Reset Switch	Used to reset trouble related to Exposure Lamp malfunction (C04XX) and Fusing malfunction (C05XX).
VR1	Contrast Adjusting Variable Resistor	Used to adjust the contrast of the Display.
PJ2	Initialize Points	Used to forcibly reset a jam/trouble that occurred due to incorrect operation, etc. when it cannot be reset by opening and closing the Front Door or pressing S1.
TP1	GND Test Point	Ground used for memory clear.
TP2	Memory Clear Test Point	Used to clear data other than all values counted by the Electronic Counters.

<Point Clearing Procedure>

- Initialize Points (PJ2)
  1. Turn the Power Switch OFF.
  2. With the PJ2I points (1, 2) shorted, turn the Power Switch ON.

- Memory Clear Test Point (TP2)
  1. Turn the Power Switch OFF.
  2. With the TP1 and TP2 points shorted, turn the Power Switch ON.

NOTES

- *When incorrect display/incorrect operation has occurred, reset and clear it in the following sequence:*
  Initialize Points (PJ2) → Memory clear Test Point (TP2)
- *When memory has been cleared, each mode must be set again (see below).*

<List of Data Cleared by the Switch and Points>

Clearing Method / Data Cleared	Front Door Open/Close	Trouble Reset Switch S1	Initialize Points PJ2	Memory Clear Test Point TP2
Jam display	O	—	O	—
Trouble display (other than Exposure/Fusing)	O	—	O	—
Trouble display (Exposure/Fusing only)	—	O	O	—
Incorrect display/incorrect operation	—	—	O	O
Copy mode program	—	—	—	O
User's choice	—	—	—	O
Tech. Rep. choice	—	—	—	O
F5/F7 setting	—	—	—	O
System setting	—	—	—	O
ADF setting	—	—	—	O
Level history	—	—	—	O
RD mode setting	—	—	—	O
Admin. mode	—	—	—	O
Adjust mode	—	—	—	O

O: Cleared. —: Not cleared.

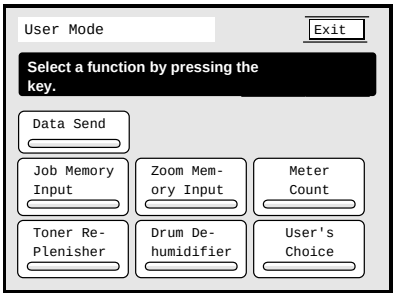
Note: When memory has been cleared, "Level History" must be selected and the required value entered into "ATDC Set".

4 USER'S CHOICE MODE

- This mode is used by the user to make various settings according to user requirements.

4-1. User's Choice Mode Menu Screen

- Select the User Mode key on the control panel.



1134P359CA

- From among the modes displayed, select User's Choice to enter the User's Choice mode.
- The User's Choice mode has a total of six screens. Press any of 1/6, 2/6, 3/6, 4/6, 5/6 and 6/6 to switch to the required menu screen as described below.

Note: "The selection Data Send" is displayed only when the copier is fitted with the DT-103.

4-2. User's Choice Mode Setting Procedure

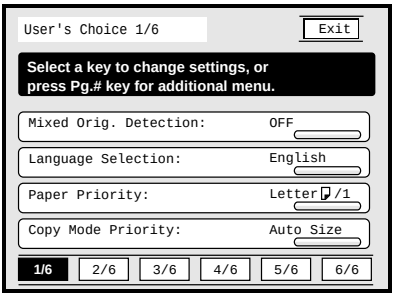
<Setting Procedure>
1. Press the User Mode key on the control panel.
2. Select the desired menu screen from among 1/6, 2/6, 3/6, 4/6, 5/6 and 6/6 displayed at the bottom of the screen.
3. On the menu screen selected, select the mode to be set and make settings as required.
4. After the settings are complete, press the "Enter" key to enter the settings.

Note: The mode selected is highlighted.

<Leving the Mode>
Perform any one of the following steps.
- Press the Panel Reset Key.
- Press "Exit" on the screen.

4-3. Settings in the User's Choice Mode

4-3-1. Menu screen 1/6



1134P368EA

1. Mixed Original Detection mode

Used to select "Mixed Original Detection" or "High Speed".

Mixed Orig. Detection ON: APS/AMS is performed for all originals loaded in the Automatic/Duplexing Document Feeder. (A paper size that can be loaded both lengthwise and crosswise is acceptable.)

Mixed Orig. Detection OFF: APS/AMS is performed for only the first sheet of paper loaded in the Automatic/Duplexing Document Feeder.

Screen Display	Description	Initial Setting
ON	Mixed Original Detection enabled (High speed mode disabled)	
OFF	Mixed Original Detection disabled (High speed mode enabled)	*

2. Language Selection

Used to specify the language to be displayed on the screen according to the user or area.

<USA/Canada Area>

Screen Display	Initial Setting
English	*
French	
Spanish	
Portuguese	

<Europe Area>

Type A

Screen Display	Initial Setting
German	*
English	
French	
Dutch	

Type B

Screen Display	Initial Setting
Italian	*
Spanish	
Portuguese	
English	

Type C

Screen Display	Initial Setting
Danish	*
Norwegian	
Swedish	
English	

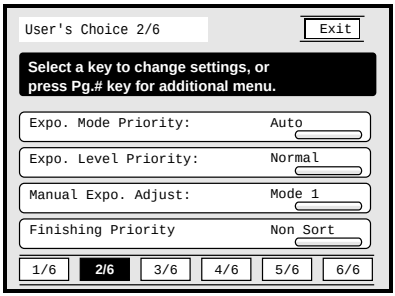
3. Paper Priority
Used to select the paper in the priority paper source in the AMS or Manual Mode.

Paper Source	Initial Setting
1st Drawer	*
2nd Drawer	
3rd Drawer	
C-302	

4. Copy Mode Priority
Used to select the Auto Mode which is given priority when the Power Switch is turned ON or Panel Reset Key pressed.

Screen Display	Initial Setting
Auto Paper	*
Auto Size	
Manual	

4-3-2. Menu screen 2/6



1134P370CA

1. Exposure Mode Priority
Used to select the Exposure mode which is given priority when the Power Switch is turned ON or Panel Reset Key pressed.

Screen Display	Initial Setting
Auto	*
Manual	

2. Exposure Level Priority

- Used to select the auto exposure level in the Auto Exposure mode.
- Used to select the manual exposure level when the Auto Exposure mode has been switched to the Manual Exposure mode.

<Auto Exposure Level Setting>

Screen Display	Description	Initial Setting
Lighter	Equivalent to EXP. 4.5	
Normal	Equivalent to EXP. 5.0	*
Darker	Equivalent to EXP. 5.5	

<Manual Exposure Level Setting>

Description	Initial Setting
EXP. 1	
EXP. 2	
EXP. 3	
EXP. 4	
EXP. 5	*

Description	Initial Setting
EXP. 6	
EXP. 7	
EXP. 8	
EXP. 9	

Note: EXP. 1: Lightest
EXP. 9: Darkest

3. Manual Exposure Adjustment

Used to select the exposure voltage level in the Manual Exposure mode according to the type of the original used.

Screen Display	Description	Initial Setting
Mode 1	Photo originals	*
Mode 2	Ordinary originals	
Mode 3	Colored originals	

<List of Manual Exposure Voltages Based on Modes>

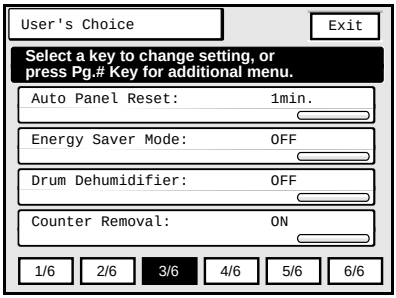
		Manual Exposure Voltage (V)								
	EXP.	1	2	3	4	5	6	7	8	9
Mode	Mode 1	+8	+5	+3	+1	0	–1	–3	–5	–8
	Mode 2	+8	+6	+5	+3	0	–2	–4	–6	–8
	Mode 3	+8	+7	+6	+4	0	–3	–5	–7	–8

Note: EXP. 5 is a voltage value adjusted automatically in the "F5" mode.

4. Priority Sort
Used to select the priority exit mode when the copier is fitted with an exit option.

Screen Display	Initial Setting
Non Sort	*
Sort	
Sort & Staple	
Group	

4-3-3. Menu screen 3/6



1134S029CA

1. Auto Panel Reset
Used to select "the Reset Timing" or "No Reset" to the initial mode at the end of a copy cycle or a given period of time after the final key is pressed.

Screen Display	Initial Setting
1 min.	*
2 min.	
3 min.	
5 min.	
No Reset	

2. Energy Saver Mode
Used to turn "ON" or "OFF" the Energy Saver Mode. Set the time for this Mode when "ON" is selected.

Description	Initial setting
1 to 10 min.	
OFF	*

<Procedure>
- To select "ON", enter the required value from the 10-key pad. When the value entered is wrong, press the Clear Key to clear the value to zero. Then, enter a correct value.
- To select "OFF", press "OFF" on the screen.

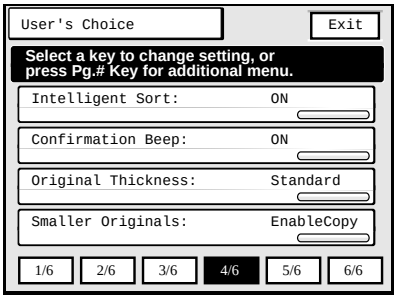
3. Drum Dehumidifier
Used to turn "ON" or "OFF" the Drum Dehumidifier when the Power Switch is turned ON.

Screen Display	Initial Setting
ON (Auto)	
OFF	*

4. Counter Removal
Used to turn "ON" or "OFF" the reset function when the Plug-In Counter/Magnetic Card (D-102) is pulled out.

Screen Display	Description	Initial Setting
ON	Reset to the initial mode.	*
OFF	Not reset to the initial mode.	

4-3-4. Menu screen 4/6



1134S030CA

1. Intelligent Sort

Used to turn "ON" or "OFF" the Intelligent Sort function (which automatically switches between Sort and Non Sort according to the number of documents) when a paper exit option is fitted to the copier and used with an Automatic/Duplexing Document Feeder.

<When set to ON>

- When the number of documents is 1, Non Sort is selected.
- When the number of documents is 2 or more, Sort is selected.

Screen Display	Description	Initial Setting
ON	Switched automatically.	*
OFF	Not switched automatically.	

Note: The Intelligent Sort mode functions when APS/AMS is selected with the Intelligent Sort mode set to "ON" and the "Mixed Orig. Detection" set to "OFF (high speed)".

2. Confirmation Beep

Used to turn "ON" or "OFF" the Confirmation Beep when any of the keys on the control panel or the Mode Keys on the screen is pressed.

Screen Display	Description	Initial Setting
ON	Beep sounds.	*
NO	Beep does not sound.	

3. Original Thickness

Used to select between bringing and not bringing originals fed by the Automatic/Duplexing Document Feeder to a stop against the Original Scale.

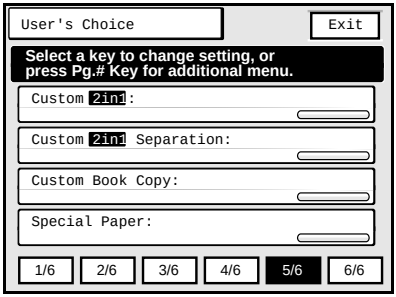
Screen Display	Description	Initial Setting
Standard	Stopped against the Original Scale.	*
Thin	Not stopped against the Original Scale.	

4. Smaller Originals
Used to turn "ON" or "OFF" the copying of originals of the minimum detectable size (less than A5 lengthwise).

Screen Display	Description	Initial Setting
ON	Originals are copied onto paper fed through the priority paper source.	*1
OFF	Warning is displayed and copying is disabled.	*2

*1: Europe Area, *2: USA/Canada Area

4-3-5. Menu screen 5/6



1134S031CA

1. Custom 2-in-1
Used to specify the priority modes (Paper, Zoom, Margin, Erase) when 2-in-1 is selected.

Mode	Description	Initial Setting
Paper	Auto paper/select a give drawer	Auto paper
Zoom	Fixed zoom ratio	×0.707
Margin	Position : Right side/left side Mode : Full size (shift)/reduction Width : 10 mm/15 mm/20 mm	No setting
Erase	Position : Right side/left side/frame erase/upper side (feeding direction)/center Width : 10 mm/15 mm/20 mm	No setting

Note: When the erase position is set to the frame erase or upper side (feeding direction), the erase width is automatically fixed at 10 mm.

2. Custom 2-in-1 Separation
Used to specify the priority modes (Paper, Zoom, Margin, Erase) when 2-in-1 Separation is selected.

Mode	Description	Initial Setting
Paper	Auto paper/select a give drawer	Auto paper
Zoom	Fixed zoom ratio	×1.414
Margin	Position : Right side/left side Mode : Full size (shift)/reduction Width : 10 mm/15 mm/20 mm	No setting
Erase	Position : Right side/left side/frame erase/upper side (feeding direction)/center Width : 10 mm/15 mm/20 mm	No setting

Note: When the erase position is set to the frame erase or upper side (feeding direction), the erase width is automatically fixed at 10 mm.

3. Custom Book Copy
Used to specify the priority modes (Paper, Zoom, Margin, Erase) when Book Copy is selected.

Mode	Description	Initial Setting
Paper	Select a give drawer	1st Drawer
Zoom	Fixed zoom ratio	×1.000
Margin	Position : Right side/left side Mode : Full size (shift) Width : 10 mm/15 mm/20 mm	No setting
Erase	Position : Right side/left side/frame erase/upper side (feeding direction)/center Width : 10 mm/15 mm/20 mm	No setting

Note: When the erase position is set to the frame erase or upper side (feeding direction), the erase width is automatically fixed at 10 mm.

4. Special Paper

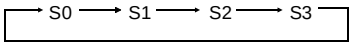
Used to specify the type of paper loaded in each paper source.

Screen Display
S0: Normal
S1: Recycled
S2: Insert Paper
S3: Not for 2-Sided

The initial settings are all S0.

<Procedure>

- Select the paper source to be set and press the key on the screen to change the displayed paper type as shown below:



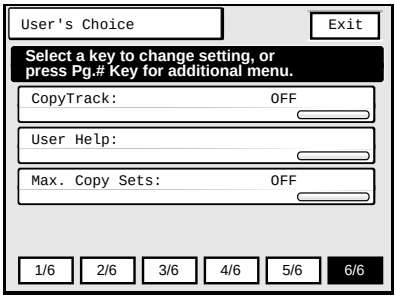
<APS/Automatic Paper Source Switching Operation>

Special Paper	APS	Automatic Paper Source Switching (Paper of the same type only)
S0: Normal	O	O
S1: Recycled	O *Note 1*	O
S2: Insert Paper	—	—
S3: Not for 2-Sided	O *Note 2*	O *Note 2*

O: Functions.
—: Does not function.

Note 1: A warning is displayed and a copy cycle is started by pressing the Start Key.
Note 2: Automatic switching is performed only in the 1-sided copy mode.

4-3-6. Menu screen 6/6

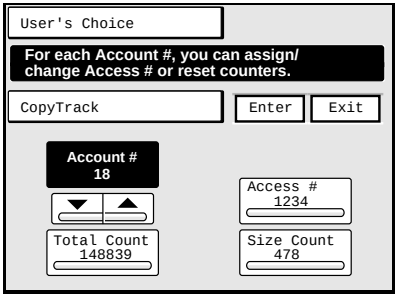


1134S032CA

1. Copy Track
Used to turn "ON" or "OFF" the Copy Track function per account (max. 26 accounts).

Screen Display	Description	Initial Setting
ON	Copy Track is made.	
OFF	Copy Track is not made.	*

<When ON is selected>
When the Access # is set by the administrator for each account, the number of copy cycles per account is monitored. (A simple form of the D-102 function is provided.)



1134S033CA

<Setting Procedure>
1. Select "ON" and press the "Enter" Key.
2. Press the ▼ / ▲ key to access the Account # to be administrated. (Max. 26 accounts)
3. Press the Access # key and register the access number corresponding to the above Account # from the 10-key pad. (Max. 4 digits)

Note: If the access number has been changed or the number entered is wrong, press the Clear Key to clear the number and re-enter.

4. Press the "Enter" Key to enter the access number.

Note: When a copy is to be made after the access number has been entered, the access number must be entered and the Access # Key pressed to enter the copy mode.

<Counter Clearing Method>
- Select the counter to be cleared and press the Clear Key.

2. User Help
When the user sends a User Help code according to the status of the copier fitted with the DT-103, this function transmits that status to the center.

<Setting Procedure>
- Enter a 3-digit value from the 10-key pad (max. six codes).

Note: To transmit the User Help code, enter the value and press "Data Send" on the User Mode screen.

3. Max. Copy Sets
Used to turn "ON" or "OFF" the maximum number setting of copy cycles.
Select "ON" to limit the number of copy cycles that can be performed in a single copy operation.

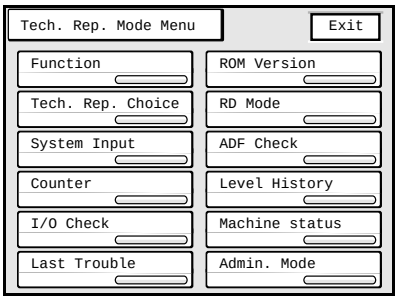
Description	Initial Setting
1-99	
OFF	*

<Setting Procedure>
- To set the maximum number of copy cycles, enter the required value (1 to 99) from the 10-key pad (without pressing any key on the screen). When it is not desired to set the maximum number, select "OFF" on the screen.

5 TECH. REP. MODE

- This mode is used by the Tech. Rep. to set, confirm, adjust and/or register various Tech. Rep. functions.

5-1. Tech. Rep. Mode Menu Screen



1134S034CA

5-2. Tech. Rep. Mode Setting Procedure

<Setting Procedure>

1. Place the copier in the Tech. Rep. mode by pressing the following Keys:

Stop Key → "0" → Stop Key → "1"

2. Select the mode to be set from among those displayed on the Tech. Rep. Mode Menu screen.
3. Make various mode settings according to the screens selected.

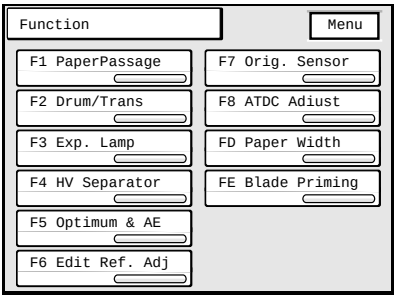
<Living the Mode>

- Press the Panel Reset Key.

5-3. Settings in the Tech. Rep. Mode

1. Function

- Used to adjust/confirm various Tech. Rep. functions.



1075S003CB

1-1. Function mode setting procedure

<Setting Procedure>
1. Select "Function".
2. Select the function mode to be adjusted/confirmed.
3. Press the Start Key to start the operation of the corresponding mode.
4. Press the Stop Key to stop the operation.

1-2. Settings in the Function mode

● F1 (Paper Passage)
This test can be initiated without having to wait for warm-up to complete.

<Operation time>
- This test continues until the Drawer or port selected for use runs out of paper.
- This test continues until the Stop Key is pressed.

● F2 (Drum/Trans)
Used to confirm the output of the High Voltage Unit (HV) for Drum Charge/Image Transfer Coronas. (For factory setting)

<Operation time>
- This function runs for 30 seconds.
- This function runs until the Stop Key is pressed.

● F3 (Exp. Lamp)
Used to confirm that the Exposure Lamp is lit.

<Operation time>
- This test runs for 30 seconds.
- This test runs until the Stop Key is pressed.

● F4 (HV Separator)
Used to confirm the output of the High Voltage Unit (HV) for the Paper Separator Corona. (For factory setting)

<Operation time>
- This function runs for 60 seconds.
- This function runs until the Stop Key is pressed.

● F5 (Optimum & AE)
Used to make Vg level adjustment, manual optimum exposure adjustment, and automatic AE Sensor optimum exposure adjustment.

<Operation time>
- This function runs for 30 seconds.
- This function runs until the Stop Key is pressed.

● F6 (Edit Ref. Adj)
Used to adjust the edit position according to the pattern output by the Image Erase Lamp.

<Operation time>
- This function runs for one copy cycle.

● F7 (Orig. Sensor)
Used to automatically adjust the Original Size Detecting Sensor.

<Operation time>
- This function continues until the adjustment ends.

● F8 (ATDC Adjust)
This function agitates the developer to automatically adjust the ATDC Sensor level.

<Operation time>
- This function runs for 3 minutes.
- This function runs until the Stop Key is pressed.

● FD (Paper Width)
Used to automatically adjust the center registration for manual feed.

<Operation time>
- This function continues until the adjustment is complete.

● FE (Blade Priming)
- Used when setting up a new machine or replacing either the Drum or Cleaning Blade.
- This function primes the Cleaning Blade to ensure a good, smooth fit between Blade and Drum, and to prevent warping of the Blade.

<Operation time>
- This function runs for 45 seconds.
- This function runs until the Stop Key is pressed.

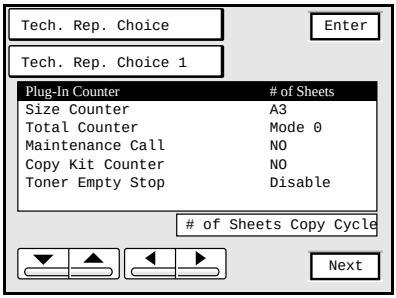
1-3. Components energized in the Function mode

Component \ Mode	F1	F2	F3	F4	F5	F6	F7	F8	FD	FE
PC Drum Drive Motor	O	O	O	O	O	O	—	O	—	O
Fusing Motor	O	—	—	—	—	O	—	—	—	—
Fan Motors	O	O	O	O	O	O	—	O	—	O
Synchronizing Motor	O	—	—	—	—	O	—	—	—	—
Toner Replenishing Motor	O	—	—	—	—	O	—	—	—	O
Scan	O	—	O	—	O	O	—	—	—	—
Paper Feed	O	—	—	—	—	O	—	—	—	—
Drum Charge Corona	O	O	—	—	O	O	—	—	—	O
Image Transfer Corona	O	O	—	—	—	O	—	O	—	—
Paper Separator Corona	O	—	—	O	—	O	—	—	—	—
Developing Bias	O	O	O	O	O	O	—	O	—	O
Seal Bias	O	O	—	—	—	O	—	—	—	—
Exposure Lamp	O	—	O	—	O	—	—	—	—	—
Main Erase Lamp	O	O	—	O	O	O	—	O	—	O
Image Erase Lamp	O	—	—	O	O	O	—	—	—	O
Pre-Image Transfer Erase Lamp	O	O	—	—	—	O	—	—	—	—
Pre-Cleaning Erase Lamp	O	O	—	—	—	O	—	—	—	—
Separator Finger Solenoid	O	—	—	—	—	O	—	—	—	—
Jam detection	O	—	—	—	—	O	—	—	—	—
Malfunction detection	O	O	O	O	O	O	O	O	O	O

O : Energized
—: Not energized

2. Tech. Rep. Choice

- Used by the Tech. Rep. to make adjustments and confirmations of various Tech. Rep. functions.



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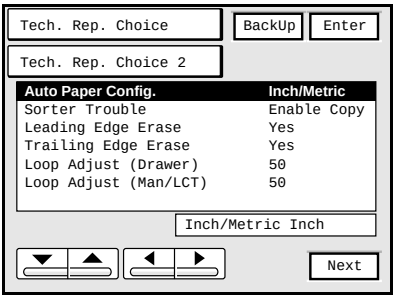
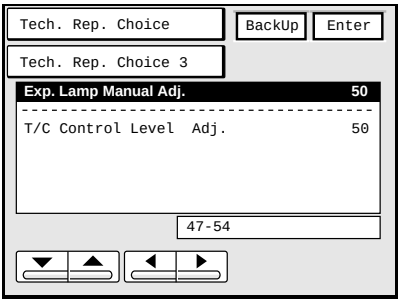


1134S037CA



1075S004CA

2-1. Tech. Rep. Choice mode setting procedure

<Setting procedure>
1. Select the Tech. Rep. mode.
2. Using ▼ / ▲ key, select the mode to be set/adjusted.

Note: Press the "Next"/"Back Up" key to switch the screen from one to another.

3. Using the ◀ / ▶ key, specify the function to be set.
4. Press the "Enter" Key to enter the set function.

2-2. Settings in the Tech. Rep. Choice mode

● Plug-In Counter
Used to select the counting method of the Plug-In Counter.

Screen Display	Initial Setting
# of Sheets	*
Copy Cycle	

Note: For the counting methods, see the Count-Up List on the next page.

● Size Counter
Used to select the paper size counted by the Paper Size Counter.

<Metric Area>

Screen Display	Initial Setting
No	
A3	*

Screen Display	Initial Setting
A3/B4	
A3/B4	

<Inch Area>

Screen Display	Initial Setting
No	
11 × 17	*

Screen Display	Initial Setting
11×14+LGR	
11×14+LGR	

Note: For the counting methods, see the Count-Up List given below.

● Total Counter
Used to select the counting method of each Counter according to the paper size and copy mode.

Screen Display	Description	Initial Setting
Mode 0	1 count per 1 copy cycle	*
Mode 1	Multiple count-up according to the paper size and copy mode	
Mode 2	Multiple count-up according to the paper size and copy mode	

Note: For the counting methods, see the Count-Up List given below.

<Count-Up List>

Copy Mode		1-Sided						2-Sided						Manual Feeding
Size Counter		Sizes other than those set			Sizes set			Sizes other than those set			Sizes set			
Total Counter		Mode 0	Mode 1	Mode 2	Mode 0	Mode 1	Mode 2	Mode 0	Mode 1	Mode 2	Mode 0	Mode 1	Mode 2	
Total Counter (Mechanical/Electronic)		1			1	2	2	2			2	4	4	1
Size Counter (Electronic)		0			1	1	2	0			2	2	0	0
Two-Sided Total Counter (Electronic)		0			0			1	1	2	1	1	4	0
Two-Sided Size Counter (Electronic)		0			0			0			1	1	4	0
Plug-In Counter (Mechanical)	# of sheets	1			1	2	2	1	2	2	1	4	4	1
	# of copy cycles	1			1	2	2	2			2	4	4	1

0: No count 1: 1 count 2: 2 counts 4: 4 counts

<Setting of the Tech. Rep. Choice Mode When the D-102 Is Installed on the Copier>

- When the D-102 is fitted to the copier, set the Tech. Rep. Choice Mode as follows according to the count-up mode of the D-102.

Count-Up Mode (D-102)	Tech. Rep. Choice Mode (Copier)			
	Plug-In Counter		Total Counter	
	# of sheets	# of copy cycles	Mode 0	Mode 1
All Size Mode	—	O	O	O
Size Mode I Size Mode II Full Color Mode I Mono Color Mode I Special Mode I	O	—	O	—
2-Sided Mode I 2-Sided Mode II Full Color Mode II Mono Color Mode II Special Mode II	—	O	O	—

O : Setting acceptable
—: Setting inhibited

● Maintenance Call
Used to select "YES" or "NO" for the Maintenance Call display when the Maintenance Counter reaches the set count.

Screen Display	Initial Setting
Yes	
No	*

Note: There are five different Maintenance Counters (up to five Counters may be set). When any of the Maintenance Counters has reached the set count the Maintenance Call message is displayed together with the inspection code "M1".

● Copy Kit Counter
Used to select "Yes" or "No" for "Copy Kit" counting by the Consumables Counter or to "Enable" or "Disable" a copy cycle when the Counter reaches the set count.

Screen Display	Description	Initial Setting
No	No count	*
Mode 1	Copy enabled when the Counter reaches the set count.	
Mode 2	Copy disabled when the Counter reaches the set count.	

Note: Select Mode 1 or 2 to start the Copy Kit Counter counting. If "No" has been set for Maintenance Call, the Maintenance Call message is displayed together with the inspection code "M4" when the Counter reaches the set count.

● Toner Empty Stop
Used to select "Disable Copy" or "Enable Copy" after a Toner Empty condition is detected.

Screen Display	Initial Setting
Enable Copy	
Disable Copy	*

Note: When "Disable Copy" has been selected, the copy cycle is inhibited on detection of a 2% or less toner-to-carrier ratio.

● Auto Paper Config.
Used to automatically select "Metric or Inch" paper or "Metric" paper for the original size detected.

Screen Display	Description	Initial Setting
Metric/Inch	The copier automatically selects metric or inch paper for the original detected.	*
Metric	The copier automatically selects metric paper for all originals detected.	

● Sorter Trouble
Used to select "Enable Copy" or "Disable Copy" when a malfunction of the paper exit option is detected.

Screen Display	Description	Initial Setting
Enable Copy	Copy is enabled after detection of a malfunction.	*
Disable Copy	Copy is disabled after detection of a malfunction.	

Note: If a malfunction has already been detected when "Enable Copy" is selected, a warning is displayed only when the malfunctioning Mode detected is selected, and the Mode selected is not accepted.

● Leading Edge Erase
Used to select "Yes" or "No" for the Leading Edge Erase function.

Note: When "Yes" is selected, the erase width is approx. 3 mm.

Screen Display	Initial Setting
Yes	*
No	

● Trailing Edge Erase
Used to select "Yes" or "No" for the Trailing Edge Erase function.

Screen Display	Initial Setting
Yes	*
No	

Note: When "Yes" is selected, the erase width is approx. 3 mm.

● Loop Adjust (Drawer)
Used to adjust the loop length (before the Synchronizing Roller) of the paper fed from any of the 1st to 3rd Drawers.

Code	Loop Length	Initial Setting
47	Approx. 4 mm	
48	Approx. 6 mm	
49	Approx. 8 mm	
50	Approx. 10 mm	*

Code	Loop Length	Initial Setting
51	Approx. 12 mm	
52	Approx. 14 mm	
53	Approx. 16 mm	

● Loop Adjust (Man/LCT)
Used to adjust the loop length (before the Synchronizing Roller) of the paper fed manually or from the paper feed option.

Code	Loop Length	Initial Setting
47	Approx. 4 mm	
48	Approx. 6 mm	
49	Approx. 8 mm	
50	Approx. 10 mm	*

Code	Loop Length	Initial Setting
51	Approx. 12 mm	
52	Approx. 14 mm	
53	Approx. 16 mm	

● Exp. Lamp Manual Adj.
Used to make fine-adjustment of the Lamp voltage in the Manual Exposure mode. When an optimum manual exposure level cannot be achieved by the execution of the "F5" function mode after the replacement of the PC Drum, etc., adjust the Exposure Lamp voltage in the range of –6 to +6V.

Code	Variable Voltage Value	Initial Setting
44	–6V	
45	–5V	
46	–4V	
47	–3V	
48	–2V	
49	–1V	
50	0V	*

Code	Variable Voltage Value	Initial Setting
51	+1V	
52	+2V	
53	+3V	
54	+4V	
55	+5V	
56	+6V	

Note: After the setting of this mode has been changed, the "F5" mode must be executed.

● T/C Control Level Adj.
Used to adjust the T/C control Level set by the AIDC Sensor Control.
This adjustment affects the grid voltage which produces the solid black pattern, which in turn determines the setting of the AIDC Sensor Control.

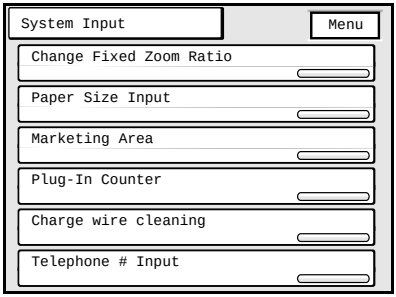
Code	Grid Voltage Correction	Initial Setting
47	Vg 0V	
48	Vg –15V	
49	Vg –30V	
50	Vg –45V	*

Code	Grid Voltage Correction	Initial Setting
51	Vg –60V	
52	Vg –75V	
53	Vg –90V	
54	Vg –105V	

Note : Code 50 → 47 Toner Density is increased.
Code 50 → 54 Toner Density is decreased.

3. System Setting

- This mode is used to set the fixed zoom ratio, paper size input, marketing area and Plug-In Counter, or to advance the Drum Charge Corona Wire.



1075S005CB

3-1. System Setting setting procedure

<Setting procedure>
1. Select "System Setting".
2. Select the mode to be set.
3. Make the various settings according to the screens selected.

3-2. Settings in the System Setting mode

● Change Fixed Zoom Ratio
Used to reset a fixed zoom ratio to a desired value within the range ×0.500 to ×2.000.

<Setting procedure>
1. Select the fixed zoom ratio to be changed and clear it with the Clear Key.

Note: If the ratio cleared is not the one to be cleared, press the Panel Reset Key to return to the preceding zoom ratio.

2. Using the 10-key pad, set the desired zoom ratio within the range ×0.500 to ×2.000.
3. Press the "Enter" Key on the screen to enter the zoom ratio set.

● Paper Size Input
Used to set the paper size used in the corresponding paper source.

<Setting procedure>
1. Select the paper source for which you want to set the paper size (on the paper Size Input 1 screen).
2. When the paper source is selected, the display automatically switches to the Paper Size Input 2 screen. Using the ▼ / ▲ key, select the paper used in the paper source selected, and press the "Enter" key.

● Marketing Area
Used to change the paper size/fixed zoom ratio according to the marketing area.

Screen Display	Factory Setting
MJ	
MH	Europe Area

Screen Display	Factory Setting
MC	U.S.A Area
Others Area	

Note: When the marketing area has been changed, the copier must be momory cleared.

● Plug-In Counter
Used to disable or enable the copier depending on whether or not a Plug-In Counter or Magnetic Card is used when the copier is equipped with a Plug-In Counter or D-102.

Screen Display	Description	Initial Setting
ON	The copier is disabled when the Plug-In Counter or Magnetic Card is removed.	
OFF	The copier remains enabled even when the Plug-In Counter or Magnetic Card is removed.	*

Note: "ON" should be selected when the copier is equipped with a Plug-In Counter or D-102.

● CH Wire Cleaning
Used to clean the Drum and Transfer charge wires to prevent uneven charging or malfunction due to contamination. This function is, or is not, performed when the Power switch is turned ON depending on the following choice.

Screen Display	Description	Initial Setting
ON	Cleaning	*
OFF	No Cleaning	

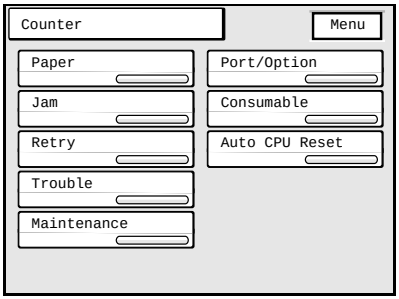
● Telephone # Input
Used to register the telephone number of the Tech. Rep. so that the telephone number registered is displayed when a malfunction occurs or a Maintenance Call is displayed.

<Setting procedure>
• Press the Clear Key and register the telephone number using the 10-key pad (up to 19 digits).

Note: Use the Interrupt Key to register "—".

4. Counter

- This mode is used by the Tech. Rep. to set the counts of the Maintenance Counter and Consumables Counter or to show the counts of various counters.



1134S040CA

4-1. Counter setting procedure

<Setting procedure>

1. Select "Counter".
2. Select the mode to be set/displayed.
3. Set or clear the count according to the screen selected.

4-2. Settings in the Counter mode

● Paper

Counts the number of sheets copied on a paper size/type basis (S0: standard paper, S1: recycled paper, S2: special paper, S3: 2-sided disabled paper).

Note: For such a paper size as A4 which can be loaded both lengthwise and crosswise, the count represents the sum of both.

<Paper Counter 1/2>

Paper Size	
A3	11 × 17
B4	11 × 14
A4	Legal
B5	Letter
A5	5-1/2 × 8-1/2
B6	FLS

<Paper Counter 2/2>

Paper Type
S0
S1
S2
S3

<Clearing procedure>

- Using the ▼/▲ key, select the paper size or paper type to be cleared and press the Clear Key.

Note: If the paper size or paper type has been cleared accidentally, press the Interrupt Key to return the counter to the count it had before clearing.

● Jam
Counts the number of jams that occurs in the copier or entire system (MCBJ) and per section.

<Jam Counter 1/3>

Screen Display	Description
MCBJ System	Jam occurrence ratio in the system
MCBJ Machine Only	Jam occurrence ratio in the copier only
Manual Feed	Number of jams that occurred at the Manual Feed Section
1st Drawer	Number of jams that occurred at the 1st Drawer
2nd Drawer	Number of jams that occurred at the 2nd Drawer
3rd Drawer	Number of jams that occurred at the 3rd Drawer

<Jam Counter 2/3>

Screen Display	Description
4th Drawer	Not counted
5th Drawer	Not counted
Dup Entrance	Number of jams that occurred at the Duplex Unit Entry
Dup Exit	Number of jams that occurred at the Duplex Unit Exit
Vertical Trans.	Number of jams that occurred in the Transport section
Horizontal Trans.	Number of jams that occurred in the Paper Separator section

Note: MCBJ = Total Counter value ÷ Jam Counter value

<Jam Counter 3/3>

Screen Display	Description
Exit	Number of jams that occurred at the Exit section
Sorter	Number of jams that occurred in the paper exit option
ADF	Number of jams that occurred in the ADF
LCT	Number of jams that occurred in the Large Capacity Cassette on C-302 section

<Clearing procedure>
• Using the ▼/▲ key, select the count to be cleared and press the Clear Key.

Note: If the count has been cleared accidentally, press the Interrupt Key to return the counter to the count it had before clearing.

● Retry

Counts the number of feed retries which are made when no paper reaches the Paper Take-Up Sensor in a given period of time in order to reduce misfeeds (jams) caused by slip, etc. of the Paper Take-Up Roll.

Screen Display	Description
1st Drawer	Number of feed retries in the 1st Drawer
2nd Drawer	Number of feed retries in the 2nd Drawer
3rd Drawer	Number of feed retries in the 3rd Drawer
4th Drawer	Not counted
5th Drawer	Not counted
Dup	Number of feed retries in the Duplex Unit
LCT	Number of feed retries in the Large Capacity Cassette on C-302

<Clearing procedure>

• Using the ▼/▲ key, select the port to be cleared and press the Clear Key.

Note: If the count has been cleared accidentally, press the Interrupt Key to return the counter to the count it had before clearing.

● Trouble

Counts the number of malfunction occurrences in each section.

<Trouble 1/7>

Screen Display		Description
Code	**Location**	
C000X	Fuser Drive Motor	Fuser Drive Motor rotation malfunction
C001X	PC Drum Drive Motor	PC Drum Drive Motor rotation malfunction
C002X	Feeding Motor	Paper Take-Up Motor rotation malfunction
C0040/1	Suction Fan Motor	Suction Fan Motor rotation malfunction
C0042/3	Toner Suction Fan	Toner Suction Fan Motor rotation malfunction
C004A/b	Optical Cooling Fan	Optical Cooling Fan Motor rotation malfunction
C004C/d	Ventilation Fan	Ventilation Fan Motor rotation malfunction
C004E/F	Power Supply Fan	Power Supply Fan Motor rotation malfunction

<Trouble 2/7>

Screen Display		Description
Code	Location	
C0070/1	Main Hopper Motor	Main Hopper Toner Replenishing Motor rotation malfunction
C0072/3	Sub Hopper Motor	Sub Hopper Toner Replenishing Motor rotation malfunction
C0080	Sync. Roller Motor	Synchronizing Motor rotation malfunction
C0100	CH Wire Cleaning	PC Drum CH Wire Cleaning malfunction
C0110	Trans. Wire Cleaning	Image Tran. CH Wire/Paper Separator CH Wire Cleaning malfunction
C0200	PC Charge Corona	PC Charge Corona malfunction
C0210	Trans. Corona	Image Transfer, Paper Separator Corona malfunction
C03XX	Control Board/Harness	Control Board, Harness malfunction

<Trouble 3/7>

Screen Display		Description
Code	Location	
C04XX	Exposure Lamp	Exposure Lamp ON malfunction
C050X	Fuser Warm-Up	Warming-up malfunction
C051X	Fuser Low Temp.	Abnormally low fusing temperature
C052X	Fuser High Temp.	Abnormally high fusing temperature
C060X	Scanner Drive System	Scanner Motor/SCP Board malfunction
C061X	Lens Drive System	Lens drive malfunction
C065X	Scanner Sensor	Scanner Reference Position Sensor malfunction

<Trouble 4/7>

Screen Display		Description
Code	Location	
C0660	Scanner System	Scanner load malfunction
C06FX	Scanner Interface	Scanner Interface malfunction
C090X	3rd Drawer	Not count
C091X	2nd Drawer	2nd Drawer malfunction
C092X	1st Drawer	1st Drawer malfunction
C095X	4th Drawer	Not count
C0990-6	LCC Main-Tray	3rd Drawer malfunction
C0998-d	LCC Shift System	3rd Drawer malfunction

<Trouble 5/7>

Screen Display		Description
Code	Location	
C09CX	LCT	C-302 malfunction
C0E0X	Main Erase Lamp	Main Erase Lamp ON malfunction
C0E20	Auxil. Erase Lamp	Image Erase Lamp ON malfunction
C0F02	Orig. Size Det. CPU	Original Size Detecting Board malfunction
C0F10	AE Sensor	AE Board malfunction
C0F2X	AIDC Sensor	AIDC Sensor malfunction
C0F3X	ATDC Sensor	ATDC Sensor malfunction

<Trouble 6/7>

Screen Display		Description
Code	**Location**	
C0F66	Paper Size Sensor	Paper Size Sensor malfunction
C0F79	Paper Empty Sensor	3rd Drawer Paper Empty Sensor malfunction
C0FE/FX	Orig. Size Det. Sens.	Original Size Detecting Sensor malfunction
C0b0X	Sorter (Transport)	Sorter transport malfunction
C0b1X	Sorter (Chuck)	Sorter Chuck movement malfunction
C0b3X	Sorter (Guide)	Sorter Paper Aligning Motor malfunction
C0b5X	Sorter (Stapler)	Stapler malfunction
C0b6X	Sorter (Bin Shift)	Bin movement malfunction

<Trouble 7/7>

Screen Display		Description
Code	**Location**	
C0b7X	Sorter (Puncher)	Punch hole malfunction
C0d00	Front/Rear Guide	Front/Rear Edge Guide operation malfunction
C0d20	Dup Storage	Gate operation malfunction
C0d5X	Dup Drive Motor	Duplex Unit Drive Motor malfunction

Note: For details of malfunctions, see the TROUBLESHOOTING Manual.

<Clearing procedure>
- Using the ▼/▲ key, select the count to be cleared and press the Clear Key.

Note: If the count has been cleared accidentally, press the Interrupt Key to return the counter to the count it had before clearing.

● Maintenance
Set the next maintenance time based on copy cycle count. The count is increased by 1 per copy cycle. When the count reaches the setting, the Maintenance Call message and inspection code "M1" are displayed together.

Note: The Maintenance Call message is displayed or not displayed depending on the setting of "Maintenance Call" in the Tech. Rep. Choice mode.

Note: If the Maintenance Call message is displayed, the copy cycle can be continued and copy is not disabled.

Screen Display		
	Set	Count
Counter 1	XXXXXX	XXXXXX
Counter 2	XXXXXX	XXXXXX
Counter 3	XXXXXX	XXXXXX
Counter 4	XXXXXX	XXXXXX
Counter 5	XXXXXX	XXXXXX

<Setting procedure>
1. Using the ▼/▶ Skey, select the counter to be set (1 to 5).
2. Enter the value from the 10-key pad (max. six digits).

Note: To clear the counter, select the count to be cleared using the ▼/ ▶ key, and press the Clear Key. If the count has been cleared accidentally, press the Interrupt Key to return the counter to the count it had before clearing.

● Port/Option
Counts the frequency of use per port/option as reference data to be used by the Tech. Rep. in maintenance.

<Port/Option 1/3>

Screen Display	Description
Manual Feed	Number of sheets fed from the Manual Feed Section
1st Drawer	Number of sheets fed from the 1st Drawer
2nd Drawer	Number of sheets fed from the 2nd Drawer
3rd Drawer	Number of sheets fed from the 3rd Drawer
4th Drawer	Not counted
5th Drawer	Not counted

<Port/Option 2/3>

Screen Display	Description
LCT	Number of sheets fed from the Large Capacity Cassette on C-302
ADF	Number of sheets that passed the ADF Entry
ADF Rev.	Number of sheets that passed the ADF Turnover section
Dup	Number of paper take-up cycles in the Duplex Unit
Sorter	Number of sheets that passed through the Sorter
Stapler	Number of stapling cycles

<Port/Option 3/3>

Screen Display	Description
Puncher	Number of punching cycles
PC Drum	Value converted from the number of PC Drum revolutions into the number of A4 crosswise sheets fed
Starter	Number of sheets fed
Fusing Roller	Value converted from the number of Fusing Roller revolutions into the number of A4 crosswise sheets fed

Note: The counts of the PC Drum, Fusing Roller are displayed on 1000 sheet basis.

<Clearing procedure>
• Using the ▼/▲ key, select the count to be cleared and press the Clear Key.

Note: If the count has been cleared accidentally, press the Interrupt Key to return the counter to the count it had before clearing.

● Consumables
Set the life of the consumables. When the count which increases one per copy cycle reaches the set count, the Maintenance Call message and a code are displayed.

Note: Code display
Toner Collect: Code "M2", Web Roller: Code "M3" Copy Kit: Code "M4"
Note: Toner Collect should not be set higher than 400 K, Web Roller should not be set higher than 200 K, The Tech. Rep. Call message is displayed when these two respective settings are reached, Copying is inhibited after 5000 more copies are made.
Note: "Copy Kit" depends on the setting of "Copy Kit Counter" in the Tech. Rep. Choice mode.

Screen Display		
	Set	Count
Toner Collect	XXXXXX	XXXXXX
Web Roller	XXXXXX	XXXXXX
Copy Kit	XXXXXX	XXXXXX

<Setting procedure>
1. Using the ▼/► key, select the counter to be set (1 to 5).
2. Enter the value from the 10-key pad (max. six digits).

Note: To clear the counter, select the count to be cleared using the ▼/► key, and press the Clear Key. If the count has been cleared accidentally, press the Interrupt Key to return the counter to the count it had before clearing.

<Clearing procedure>
• Using the ▼/▲ key, select the count to be cleared and press the Clear Key.

Note: If the count has been cleared accidentally, press the Interrupt Key to return the counter to the count it had before clearing.

- Code: M1
  Displayed to indicate that the count of any Maintenance Counter has reached the set count.

<Resetting procedure>
1. Select "Count" in the Tech. Rep. mode and access the"Maintenance" screen.
2. Select the count that has reached the set count and press the Clear Key to clear the count.

- Code: M2
  Displayed to indicate that the Toner Collect count of the Consumables Counter has reached the set count.

<Resetting procedure>
1. Select "Count" in the Tech. Rep. mode and access the "Consumables" screen.
2. Select the count of Toner Collect and press the Clear Key to clear the count.

- Code: M3
  Displayed to indicate that Web Roller count of the Consumables Counter has reached the setting.

<Resetting Procedures>
1. Select "Count" in the Tech. Rep. mode and call up the "Consumable" screen.
2. Select the count for Web Roller and press the clear key to clear the count.

- Code: M4
  Displayed to indicate that the Copy Kit count of the Consumables Counter has reached the set count.

<Resetting procedure>
1. Select "Count" in the Tech. Rep. mode and access the "Consumables" screen.
2. Select the count of Copy Kit and press the Clear Key to clear the count.

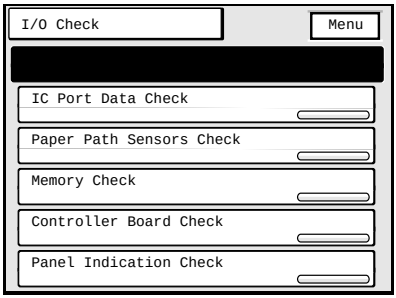
● Auto CPU Reset
  On detection of an incorrect operation due to noise, etc., the CPU deenergizes and energizes the Main Relay to prevent the occurrence of a malfunction. "1" or "0" is displayed to indicate whether an incorrect operation has occurred or not based on the locations of occurrences.

Screen Display	Description
MSC/Panel	PWB-B (MSC Board)
Master	PWB-A (Master Board)
SCP	PWB-J (SCP Board)
ADF	AFR-9
Sorter	S-206/ST-207
Data Controller	D-102

Note: "1" indicates the occurrence of a malfunction and "0" no malfunction.

5. I/O Check

- This mode is used to check the Sensors and Boards at the occurrence of a jam or malfunction to determine the location of the fault.



1134S041CA

5-1. I/O Check setting procedure

<Setting procedure>

1. Select "I/O Check".
2. Select the mode to be checked.
3. Check the mode and change data according to the screen selected.

5-2. Settings in the I/O Check mode

● IC Port Data Check

Shows the states of I/O ports in a machine stop state.

<Input ports>

= Input Port Data display: "L/H" =

Cause the sensor to be "not blocked" or "blocked" to display "H" or "L" as input port data according to the sensor state. This allows the sensor to be checked.

<Output ports>

= Output Port Data display: "0/1" =

Change the data of an output port from "0 to 1" or "1 to 0" with the "Change" key to make an operation check on the electrical part corresponding to that port. This allows the electrical part to be checked.

Note: Only the ports whose data may be changed are highlighted. 5 seconds after the data is changed, the port highlighted returns to the previous state. Two or more pieces of data cannot be changed together.

<IC Port Data 1/8>

IC No.	Port	Data								
		7	6	5	4	/	3	2	1	0
PWB-A	P47-0	1	1	1	1		0	*	*	*
(IC1A)	P57-0	H	1	0	1		0	1	0	1
	P67-0	1	1	1	1		H	H	L	1
	P87-0	1	*	L	*		1	*	H	*
PWB-A	APA7-0	H	H	H	H		L	L	L	L
(IC4A)	APB7-0	1	0	0	1		1	1	1	1
	APC7-0	1	1	1	1		L	*	H	H
	BPA7-0	L	H	H	H		L	L	H	H

Note: "" indicates either an unused or non-existing port.*

<IC Port Data 2/8>

IC No.	Port	Data								
		7	6	5	4	/	3	2	1	0
PWB-A	BPB7-0	1	1	1	1		1	1	1	0
(IC4A)	BPC7-0	1	1	1	1		H	L	L	L
	ϕ3-0	*	*	*	*		1	1	1	1
PWB-A	APA7-0	1	1	1	1		1	1	1	1
(IC5A)	APB7-0	H	H	H	H		H	H	L	H
	APC7-0	H	H	L	H		H	H	H	L
	BPA7-0	*	*	1	*		1	1	0	1
	BPB7-0	H	H	L	L		L	H	L	H

<IC Port Data 3/8>

IC No.	Port	Data								
		7	6	5	4	/	3	2	1	0
PWB-A (IC5A)	BPC7-0 ϕ3-0	H *	H *	H *	H *		H 1	L 1	H 1	H 1
PWB-F (4) (IC1F)	PB3-0/PA3-0 PD3-0/PC3-0 PF3-0/PE3-0 PH3-0/PG3-0 PB3-0/PA3-0 PD3-0/PC3-0	* * * * * *	* * * * * *	* * * * * *	* * * * * *		* * * * * *	* * * * * *	* * * * * *	* * * * * *

Note: 4: Japan Only

<IC Port Data 4/8>

IC No.	Port	Data								
		3	2	1	0	/	3	2	1	0
PWB-F (4) (IC1F)	PF3-0/PE3-0 PH3-0/PG3-0	* *	* *	* *	* *		* *	* *	* *	* *
PWB-A (4) (IC2F)	PB3-0/PA3-0 PD3-0/PC3-0 PF3-0/PE3-0 PH3-0/PG3-0	* * * *	* * * *	* * * *	* * * *		* * * *	* * * *	* * * *	* * * *
PWB-F (3MJ) (IC1F)	PB3-0/PA3-0 PD3-0/PC3-0	1 *	1 *	1 H	1 H		* 1	* 1	1 1	1 1

Note: 3MJ: Except for U.S.A. and Canada Areas

<IC Port Data 5/8>

IC No.	Port	Data								
		3	2	1	0	/	3	2	1	0
PWB-F (3MJ) (IC1F)	PF3-0/PE3-0 PH3-0/PG3-0	0 *	0 *	0 1	0 0		0 L	0 H	0 1	0 0
PWB-F (3MJ) (IC2F)	PB3-0/PA3-0 PD3-0/PC3-0 PF3-0/PE3-0 PH3-0/PG3-0	* * * *	* * * *	H H H L	H L L L		L L L H	H H H L	H H H *	L * L H
PWB-F (3MC) (IC2F)	PB3-0/PA3-0 PD3-0/PC3-0	1 *	1 *	1 H	1 H		1 1	1 1	1 1	1 1

Note: 3MC: U.S.A. and Canada Areas Only

<IC Port Data 6/8>

IC No.	Port	Data								
		3	2	1	0	/	3	2	1	0
PWB-F (3MC) (IC1F)	PF3-0/PE3-0 PH3-0/PG3-0	0 *	0 *	0 1	0 0		0 L	0 H	0 1	0 0
PWB-F (3MC) (IC2F)	PB3-0/PA3-0 PD3-0/PC3-0 PF3-0/PE3-0 PH3-0/PG3-0	L * H *	L * H *	H H H L	H L L L		L L L H	H H H L	H H H H	L H L H
PWB-G (Dup) (IC1G)	PB3-0/PA3-0 PD3-0/PC3-0	1 *	1 *	* *	* *		1 L	1 H	1 H	1 H

Note: Dup: Duplex Unit

<IC Port Data 7/8>

IC No.	Port	Data								
		3	2	1	0	/	3	2	1	0
PWB-G (Dup) (IC1G)	PF3-0/PE3-0 PH3-0/PG3-0	0 *	0 *	0 1	0 1		* 0	* 0	H 0	L 0
PWB-A (C) (IC1A)	PB3-0/PA3-0 PD3-0/PC3-0 PF3-0/PE3-0 PH3-0/PG3-0 PB3-0/PA3-0 PD3-0/PC3-0	* * * * * *	* * * * * *	* * * * * *	* * * * * *		* * * * * *	* * * * 0 L	* * * * 0 H	* * * * 1 L

Note: LCC: C-302

<IC Port Data 8/8>

IC No.	Port	Data								
		3	2	1	0	/	3	2	1	0
PWB-A (LCC) (IC1A)	PF3-0/PE3-0 PH3-0/PG3-0	* *	* *	* 0	* 0		* H	* L	0 H	0 L

● Paper Path Sensors Check

The passage of paper causes the states of the Paper Path Sensors to be switched from "1 to 0" or "0 to 1" in order of paper passage. This allows checking whether the Sensors are "normal" or "faulty".

Screen Display	Sensor Name
1 1st Feed	1st Drawer Paper Take-Up Sensor (PC6)
2 2nd Feed	2nd Drawer Paper Take-Up Sensor (PC7)
3 3rd Feed	3rd Drawer Paper Take-Up Sensor (PC8)
4 4th Feed	Not Use
5 1st Vertical	Vertical Transport Sensor 1 (PC10)
6 2nd Vertical	Vertical Transport Sensor 2 (PC11)
7 3rd Vertical	Vertical Transport Sensor 3 (PC12)
8 4th Vertical	Not Use
9 Trans. Roller	Transport Roller Sensor (PC26)
10 Leading Edge	Paper Leading Edge Sensor (PC27)
11 Exit Section	Paper Exit Switch (PC36)
12 Turnover	Duplex Unit Turnover Path Sensor (PC39)
13 Dup Entrance	Duplex Unit Paper Entry Sensor (PC38)
14 Dup Exit	Duplex Unit Paper Take-Up Sensor (PC40)

Note: "0": Paper present, "1": Paper absent

<Setting procedure>

- Select the paper path (Drawer/Duplex Unit) to be checked, enter this mode, and press the Start Key.

Note: When "Auto Paper" has been selected, paper is not passed (the check is not made).

● Memory Check
Used to check whether the ROM/RAM on the PWB-B Board (MSC Board) is accessed properly or not.

Check Result	Screen Display	Action
Normal	"Memory check completed. Turn the Power Switch OFF, and then ON.	The Power Switch must be turned OFF and ON.
Faulty	"ROM ERROR"	Change PWB-B (IC2B).
	"Message ROM ERROR"	Change PWB-B (IC4B).
	"RAM ERROR"	Change the PWB-B Board.
	"VRAM ERROR"	Change the PWB-B Board.
	"LCDTC ERROR"	Change the PWB-B Board.

<Setting procedure>
• Selecting this mode automatically puts the copier in the Memory Check mode.

Note: For the screen displayed after completion of the check, see the above table.

● Controller Board Check
Used to make a self-diagnostic check on the PWB-A (Master Board).

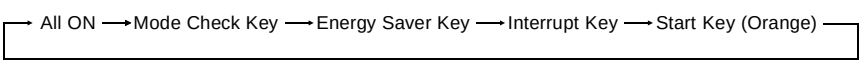
Check Result	Screen Display	Action
Normal	"Board Check mode highlighted returns to the previous state."	None
Faulty	"Malfunction code C03XX is displayed."	Change the PWB-A Board.

<Setting procedure>
• Selecting this mode automatically puts the copier in the Controller Board Check mode.

Note: For the screen displayed after completion of the check, see the above table.

● Panel Indication Check
Used to check the Control Panel LEDs and screen (liquid crystal).

<Setting procedure>
1. When this mode is selected, the LEDs which are all ON are turned OFF in the following sequence. When all the LEDs are turned OFF, they are turned ON again in the same sequence.



2. Checkered patterns appear on the screen (liquid crystal).
3. Select individual patterns. If the pattern displayed on the screen is switched from white to black or from black to white, it is judged that the corresponding liquid crystal is normal.

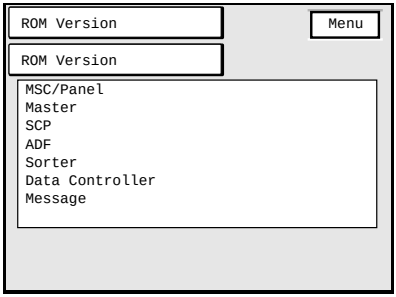
6. Last Trouble

- Displays the copy mode in which the most recent malfunction occurred.

Item	Description
Copy paper	APS, paper size
Zoom ratio	AMS, zoom ratio
Image density	AE, Manual Exposure
Copy cycle	Copy cycle
Original copy mode	1-sided → 2-sided, 2-sided → 2-sided, etc., Mixed Original Detection mode, Book mode
Sort mode	Sort, Non-sort, Group, Staple, Punch
Cover mode	Front cover, back cover, copied cover, not copied
Insertion mode	Copied insert, non-copied
OHP Interleaving mode	Copied interleave, non-copied
File Margin mode	Margin function, margin position, margin width
Erase mode	Erase function, erase position, erase width

7. ROM Version

- Displays the current ROM version loaded in the system.



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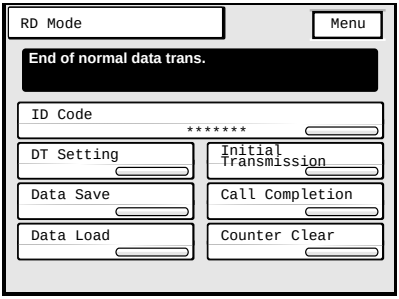
Screen Display	Description
MSC/Panel	PWB-B (IC2B)
Master	PWB-A (IC2A)
SCP	PWB-J (IC1J)
ADF	PWB-A (IC3A)
Sorter	S-206 PWB-A (IC3A) ST-207 PWB-A (IC3A)
Data Controller	D-102 (IC2)
Message	PWB-B (IC4B)

8. RD Mode

• Select this mode when the copier is fitted with the DT-103.



1134S052CA

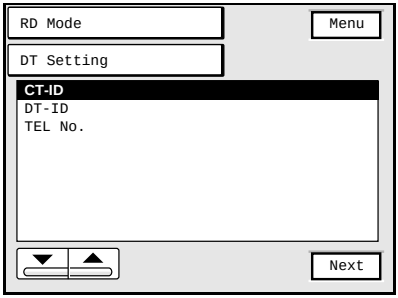
<Setting procedure>

• With this screen displayed, enter the ID Code from the 10-key pad (seven digits).

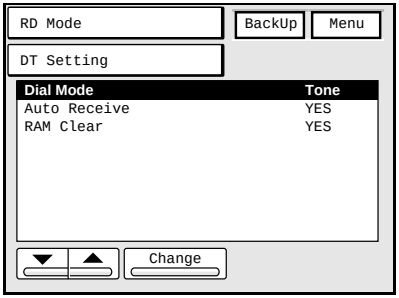
8-1. Settings in the RD mode

● DT Setting

When the copier is fitted with the DT-103, make the necessary settings.



1134S053CA



1134S054CA

<Setting procedure>

1. Select CT-ID and enter the center ID from the 10-key pad (four digits).
2. Select DT-ID and enter the data terminal ID from the 10-key pad (six digits).
3. Select TEL No. and enter the telephone number of the Center from the 10-key pad.

Note: When the office extension and outside line use different systems, enter "p" (for a "pulse" telephone line) or "t" (for a "tone" telephone line) with the Stop Key before entering the telephone number.

Note: Enter a pause or wait code according to the time required for switching from the extension line to the outside line, which depends on the type of office system used:
Switching time = less than 3 seconds → Use the Interrupt Key to enter the pause code "—".
Switching time = more than 3 seconds → Use the Energy Saver Key to enter the wait code "w".

4. Press the "Next" key.
5. Select "Dial Mode" and set the Dial Mode with the "Change" key according to the type of the telephone line used.

Pulse line	P10/P20
Tone line	Tone

6. Select "Auto Receive" and specify "Yes" or "No" using the"Change" key.

Yes	There is a DT-103 dedicated line.
No	There is no DT-103 dedicated line.

Note: When there is no DT-103 dedicated line, specify "No".

7. Select "RAM Clear" and select "No" using the "Change" key.

Yes	To make setting again.
No	Normal setting

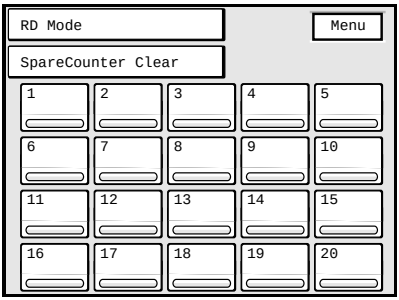
Note: Select "Yes" to change CT-ID or DT-ID after completion of the set-up. If "Yes" is not selected, the setting cannot be changed.

- Data Save
  Used to transmit the User's Choice/Tech. Rep. Choice settings to the Center.
- Data Load
  Used to return the Choice settings transmitted to the Center by Data Save.
- Initial Transmission
  Used when the DT-103 has been set up to give a transmission command from the Data Terminal to the Center to check the communication status.
  Any of the following messages is displayed according to the communication status:

Message Displayed	
End of normal data trans.	Connection failed.
Line is busy.	DT modem error.
Not answering.	Connected.
Max. trial number reached.	

- Call Completion
  Notifies the Center that the maintenance of the machine is complete.

● Counter Clear
Used to clear the Spare Counter to be cleared.

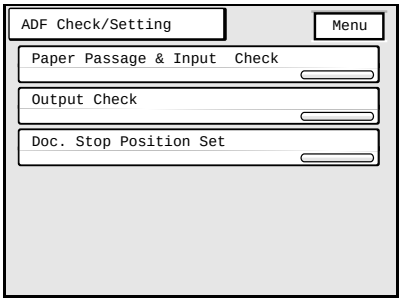


1134S055CA

<Setting procedure>
• Selecting the Counter to be cleared clears the selected Counter.

9. ADF Check/Setting

- This mode is used to check the operation of the Automatic/Duplexing Document Feeder and to adjust the document stop position in each mode.



1134S050CA

9-1. ADF Check/Setting setting procedure

<Setting procedure>

1. Select "ADF Check/Setting".
2. Select the mode to be checked/set.
3. Make the check or adjustment in the corresponding mode according to the screen selected.

9-2. Settings in the ADF Check/Setting mode

● Paper Passage & Input Check

The results of the Paper Passage Check and Sensor Check of the document path in each mode are indicated by "1/0".

Sensor
Empty Sensor (PC2)
Register Sensor (PC1)
Exit Sensor (PC8)
Width Sensor A (PC9)
Width Sensor B (PC10)
Width Sensor C (PC11)
Pick-Up Sensor A (PC3)
Pick-Up Sensor B (PC4)

Note: "1" indicates that paper is present and "0" that paper is absent except for the Pick-Up Sensors A, B where "1" indicates that the Sensor is unblocked and "0" that it is blocked.

<Setting procedure>

1. On the Paper Passage Check screen, select the mode to be checked.
2. Press the "Next" key to access the Input Check screen, load paper onto the Automatic/Duplexing Document Feeder, and press the Start Key.
3. According to the mode selected, make sure that "1/0" changes in order of the paper passage.

● Output Check

Used to check the operations of the Motors and Solenoids as single parts.

Screen Display	Part Name
M1	Pick-Up Motor
M2	Paper Take-Up Motor
M3	Main Drive Motor

Screen Display	Part Name
M4	Turnover/Exit Motor
SL1	Scale Solenoid
SL2	Turnover Solenoid

<Setting procedure>

• Select the part to be checked for operation and press the Start Key.

● Doc. Stop Position Set
Used to adjust the document stop position in each mode.

- 1-Sided -

Used to adjust the stop position of 1-sided documents when the Automatic/Duplexing Document Feeder is used on the copier.

Setting	Description	Initial Setting
43	Approx. –7 mm	
44	Approx. –6 mm	
45	Approx. –5 mm	
46	Approx. –4 mm	
47	Approx. –3 mm	
48	Approx. –2 mm	
49	Approx. –1 mm	
50	Approx. 0 mm	*

Setting	Description	Initial Setting
51	Approx. +1 mm	
52	Approx. +2 mm	
53	Approx. +3 mm	
54	Approx. +4 mm	
55	Approx. +5 mm	
56	Approx. +6 mm	
57	Approx. +7 mm	
58	Approx. +8 mm	

Note: "43 to 49": Direction in which the document stop position overlaps the Original Scale
"51 to 58": Direction in which the document stop position moves away from the Original Scale

- 2-Sided -

Used to adjust the stop position of 2-sided documents when the Automatic/Duplexing Document Feeder is used on the copier.

Setting	Description	Initial Setting
43	Approx. –7 mm	
44	Approx. –6 mm	
45	Approx. –5 mm	
46	Approx. –4 mm	
47	Approx. –3 mm	
48	Approx. –2 mm	
49	Approx. –1 mm	
50	Approx. 0 mm	*

Setting	Description	Initial Setting
51	Approx. +1 mm	
52	Approx. +2 mm	
53	Approx. +3 mm	
54	Approx. +4 mm	
55	Approx. +5 mm	
56	Approx. +6 mm	
57	Approx. +7 mm	
58	Approx. +8 mm	

Note: "43 to 49": Direction in which the document stop position overlaps the Original Scale
"51 to 58": Direction in which the document stop position moves away from the Original Scale

- 2in1-

Used to adjust the stop position of 2-in-1 documents when the Automatic/Duplexing Document Feeder is used on the copier.

Setting	Description	Initial Setting
43	Approx. –7 mm	
44	Approx. –6 mm	
45	Approx. –5 mm	
46	Approx. –4 mm	
47	Approx. –3 mm	
48	Approx. –2 mm	
49	Approx. –1 mm	
50	Approx. 0 mm	*

Setting	Description	Initial Setting
51	Approx. +1 mm	
52	Approx. +2 mm	
53	Approx. +3 mm	
54	Approx. +4 mm	
55	Approx. +5 mm	
56	Approx. +6 mm	
57	Approx. +7 mm	
58	Approx. +8 mm	

Note: "43 to 49": Direction in which the document stop position overlaps the Original Scale
"51 to 58": Direction in which the document stop position moves away from the Original Scale

- 2in1 Doc. Spacing -

Used to adjust the spacing of 2-in-1 documents when the Automatic/Duplexing Document Feeder is used on the copier.

Setting	Description	Initial Setting
43	Approx. –7 mm	
44	Approx. –6 mm	
45	Approx. –5 mm	
46	Approx. –4 mm	
47	Approx. –3 mm	
48	Approx. –2 mm	
49	Approx. –1 mm	
50	Approx. 0 mm	*

Setting	Description	Initial Setting
51	Approx. +1 mm	
52	Approx. +2 mm	
53	Approx. +3 mm	
54	Approx. +4 mm	
55	Approx. +5 mm	
56	Approx. +6 mm	
57	Approx. +7 mm	
58	Approx. +8 mm	

Note: "43 to 49": Direction in which the document spacing decreases
"51 to 58": Direction in which the document spacing increases

<Setting procedure>
1. Using the ▼/▲ key, select the mode to be adjusted.
2. Using the ◀ / ▶ key, select the desired setting.

10. Level History

- This mode is used to display and set various level operating values to the operating status of the machine.

<Level History 1/2>

Screen Display		Variable Range	Increments	Description
ATDC Level	Set	2 to 254	2	Reference value of ATDC control
	Target	1.0 to 9.0 (%)	0.5%	Target ATDC level
	Correction	1.0 to 9.0 (%)	0.5%	Current ATDC level
Vg Level	Initial	650 to 875 (V)	15V	Initial setting of grid voltage
	Current	650 to 875 (V)	15V	Correction value of grid voltage due to changes with time

<Level History 2/2>

Screen Display		Variable Range	Increments	Description
Fuser Temp.	Set	180 to 200 (°C)	10°C	Target value of fuser temperature
	Current	160 to 220, 225 (°C)	10°C	Current fuser temperature
Expo. Level	Initial	49 to 80 (V)	1V	Initial setting of Exposure Lamp level
	Current	49 to 80 (V)	1V	Correction value of Exposure Lamp voltage due to changes with time
Toner Replenishing Time		0 to 1270 (minutes)	10 minutes	Cumulative time of toner replenishment

NOTE

Values may be entered into only "ATDC Level - Set" and "Fuser Temp. - Set". The other level histories are only displayed for your reference.

= ATDC level reference value =
When the PWB-R (RAM Board) is changed or the P/C Unit from another machine is used, enter the ATDC level reference value (given on the Label found inside the Front Door).

= Fuser temperature setting =
When a fusing malfunction occurs frequently due to the environment or paper used, adjust the fuser temperature setting to prevent the fuser malfunction.

<Setting procedure>
1. Select the mode to be set.
2. Using the ◀ / ▶ key, select the desired setting.

11. Machine Status

- This mode is used to display up to five codes of isolated malfunctions that have occurred. The following malfunctions are detected as isolated malfunctions.

Malfunction Code		Description
C03	51 to 54 71/74	Control Board, Harness malfunction
C09	XX	Paper feed malfunction
C0F	02	Original size detection malfunction
C0F	20, 21, 23	AIDC Sensor malfunction
C0F	79	Paper Empty Sensor malfunction
C0F	E1 to FF	Original Size Detecting Sensor malfunction
C0b	10 to 13, 30, 51, 60 to 64, 70, 71	Sorter malfunction
C0d	XX	Duplex Unit malfunction

Note 1: Up to five isolated malfunction codes are displayed. When the sixth isolated malfunction is detected or when an isolated malfunction is detected at any paper source other than the Manual Feed Section, the corresponding ordinary malfunction code is displayed and copy is disabled.

Note 2: The isolated malfunctions corresponding to codes C0bXX (Sorter Trouble) are displayed in the form of the following pictorial symbols, not in the form of malfunction codes. The malfunctions corresponding to codes C0b10 to 13, 51 and 70 are treated as isolated malfunctions when detected during initial operation and as ordinary malfunctions when detected during a copy cycle.

C0b10 to 13/30/60 to 64 : 1134M071AA

C0b51 : 1134M072AA

C0b70, 71 : 1134M073AA

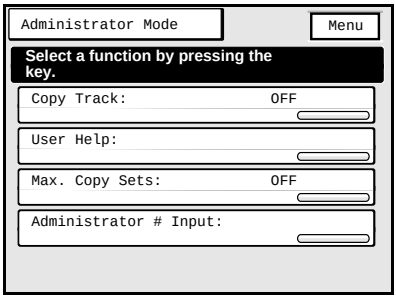
<Clearing procedure>

- With the Machine Status screen being displayed, swing open/close the Front Door to clear all the isolated malfunction codes being displayed.

Note: For C0F02/C0FE1 to FF and C0bXX, turn the Power Switch OFF and ON to clear the isolated malfunction codes.

12. Administrator Mode

- This mode is used to set the administrator number in addition to the functions on "Menu Screen 6/6" in the User's Choice mode.



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- Copy Track
- User Help
- Max. Copy Sets

*: For these functions, see "Menu Screen 6/6" in the User's Choice Mode.

- Administrator # Input
  Used to set the administrator number required to make any of the above settings on "Menu Screen 6/6" in the User's Choice Mode. (Identification number setting for opening the screen)

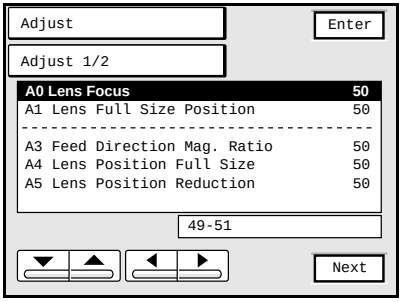
<Setting procedure>

- Enter the number from the 10-key pad (max. four digits).

6 ADJUST MODE

- This mode is used to adjust the optical components before shipment from the factory and must not be executed except when the PWB-R (RAM Board) has been changed. When the PWB-R has been changed, enter the factory settings indicated on the Label inside the Front Door.

6-1. Adjust Mode Screens



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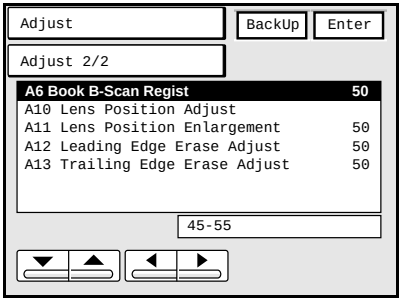

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6-2. Adjust Mode Setting Procedure

<Setting Procedure>
1. Place the copier in the Tech. Rep. mode by pressing the following Keys.

Stop Key → "0" → Stop Key "1"

2. Then, place the copier in the Adjust Mode with the following Keys.

Stop Key → Start Key

3. Make various settings according to the screen selected.
4. Using the ▼/▲ key, select the function of the Adjust Mode to be set.

Note: Press the "Next" or "Back Up" key to switch the screen from one to the other.

5. Using the ◀ / ▶ key, select the setting.
6. Press "Enter" to enter the setting.

Note: In regard to A0, A1and A10, after pressing Enter Key, setting is completed by turning the Power switch OFF and ON.

<Leving the Mode>
- Press the Panel Reset Key.

6-3. Settings in the Adjust Mode

● Lens Focal Length Adjustment (A-0)
Corrects the focal length of the Lens.

Setting	Description	Initial Setting
49	Short focal length adjustment	
50	Standard	*
51	Long focal length adjustment	

● Lens Full Size Position Adjustment (A-1)
Adjusts the magnification ratio in the crosswise direction by finely adjusting the Lens home position.

Setting	Description	Initial Setting
43	±0 steps	
44	+2 steps	
45	+4 steps	
46	+6 steps	
47	+8 steps	
48	+10 steps	
49	+12 steps	
50	+14 steps	*

Setting	Description	Initial Setting
51	+16 steps	
52	+18 steps	
53	+20 steps	
54	+22 steps	
55	+24 steps	
56	+26 steps	
57	+28 steps	
58	+30 steps	

● Feeding Direction Magnification Ratio Adjustment (A-3)
Adjusts the magnification ratio in the feeding direction by finely adjusting the scan speed.

Setting	Description	Initial Setting
46	–16/1000	
47	–12/1000	
48	–8/1000	
49	–4/1000	
50	±0	*

Setting	Description	Initial Setting
51	+4/1000	
52	+8/1000	
53	+12/1000	
54	+16/1000	

● Lens Position Full Size Registration (A-4)
Adjusts the leading edge for a full size copy by changing the engagement timing of the Synchronizing Roller.

Setting	Description	Initial Setting
40	–10 pulses	
41	–9 pulses	
42	–8 pulses	
43	–7 pulses	
44	–6 pulses	
45	–5 pulses	
46	–4 pulses	
47	–3 pulses	
48	–2 pulses	
49	–1 pulse	
50	±0	*

Setting	Description	Initial Setting
51	+1 pulse	
52	+2 pulses	
53	+3 pulses	
54	+4 pulses	
55	+5 pulses	
56	+6 pulses	
57	+7 pulses	
58	+8 pulses	
59	+9 pulses	
60	+10 pulses	

Note: Increments: Approx. 0.4 mm/1 pulse

● Lens Position Reduction Registration (A-5)
Adjust the leading edge for a reduction copy by changing the engagement timing of the Synchronizing Roller.

Setting	Description	Initial Setting
40	–20 pulses	
41	–18 pulses	
42	–16 pulses	
43	–14 pulses	
44	–12 pulses	
45	–10 pulses	
46	–8 pulses	
47	–6 pulses	
48	–4 pulses	
49	–2 pulse	
50	±0	*

Setting	Description	Initial Setting
51	+2 pulse	
52	+4 pulses	
53	+6 pulses	
54	+8 pulses	
55	+10 pulses	
56	+12 pulses	
57	+14 pulses	
58	+16 pulses	
59	+18 pulses	
60	+20 pulses	

Note: Increments: Approx. 0.4 mm/2 pulse

● Book B Scan Registration (A-6)
Adjust Book Scan B by changing the engagement timing of the Synchronizing Roller.

Setting	Description	Initial Setting
45	–5 pulses	
46	–4 pulses	
47	–3 pulses	
48	–2 pulses	
49	–1 pulse	
50	±0	*

Setting	Description	Initial Setting
51	+1 pulse	
52	+2 pulses	
53	+3 pulses	
54	+4 pulses	
55	+5 pulses	

Note: Increments: Approx. 0.4 mm/1 pulse

● Lens Position Adjust (A-10)
Corrects the optical center of the lens (to center the copy image) by moving the lens position.

Setting	Description	Initial Setting
40	–10 pulses	
41	–9 pulses	
42	–8 pulses	
43	–7 pulses	
44	–6 pulses	
45	–5 pulses	
46	–4 pulses	
47	–3 pulses	
48	–2 pulses	
49	–1 pulse	
50	±0	*

Setting	Description	Initial Setting
51	+1 pulse	
52	+2 pulses	
53	+3 pulses	
54	+4 pulses	
55	+5 pulses	
56	+6 pulses	
57	+7 pulses	
58	+8 pulses	
59	+9 pulses	
60	+10 pulses	

● Lens Position Enlargement Registration (A-11)
Adjust the leading edge for a enlargement copy by changing the engagement timing of the Synchronizing Roller.

Setting	Description	Initial Setting
40	–10 pulses	
41	–9 pulses	
42	–8 pulses	
43	–7 pulses	
44	–6 pulses	
45	–5 pulses	
46	–4 pulses	
47	–3 pulses	
48	–2 pulses	
49	–1 pulse	
50	±0	*

Setting	Description	Initial Setting
51	+1 pulse	
52	+2 pulses	
53	+3 pulses	
54	+4 pulses	
55	+5 pulses	
56	+6 pulses	
57	+7 pulses	
58	+8 pulses	
59	+9 pulses	
60	+10 pulses	

Note: Increments: Approx. 0.8 mm/1 pulse

● Leading Edge Erase Adjustment (A-12)
Corrects the width of erase on the leading edge of an image by changing the ON timing of the Image Erase Lamp.

Setting	Description	Initial Setting
45	–5 mm	
46	–4 mm	
47	–3 mm	
48	–2 mm	
49	–1 mm	
50	±0 mm	*

Setting	Description	Initial Setting
51	+1 mm	
52	+2 mm	
53	+3 mm	
54	+4 mm	
55	+5 mm	

● Trailing Edge Erase Adjustment (A-13)
Corrects the width of erase on the trailing edge of an image by changing the ON timing of the Image Erase Lamp.

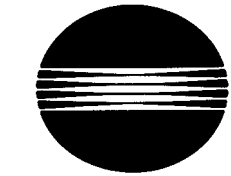
Setting	Description	Initial Setting
42	–8 mm	
43	–7 mm	
44	–6 mm	
45	–5 mm	
46	–4 mm	
47	–3 mm	
48	–2 mm	
49	–1 mm	
50	±0 mm	*

Setting	Description	Initial Setting
51	+1 mm	
52	+2 mm	
53	+3 mm	
54	+4 mm	
55	+5 mm	
56	+6 mm	
57	+7 mm	
58	+8 mm	

7 LIST OF SETTINGS TO BE MADE DUE TO PARTS REPLACEMENT

Parts Changed / Setting Item	RAM Board	PC Drum	Starter	AIDC Sensor	ATDC Sensor	Original Size Detecting Sensor	Exposure Lamp	Original Size Detecting Board
Copy Mode Program	O	—	—	—	—	—	—	—
User's Choice Mode	O	—	—	—	—	—	—	—
Tech. Rep. Mode	O	—	—	—	—	—	—	—
Adjust Mode	O	—	—	—	—	—	—	—
F5 Mode	O	O	—	O	—	—	O	—
F7 Mode	O	—	—	—	—	O	—	O
FD Mode	O	—	—	—	—	—	—	—
"PC Drum" in the Port/Option Counter cleared	—	O	—	—	—	—	—	—
"Starter" in the Port/Option Counter cleared	—	—	O	—	O	—	—	—
Initialize	O	—	—	—	—	—	—	—
Memory Clear	O	—	—	—	—	—	—	—

O: Setting made —: No setting



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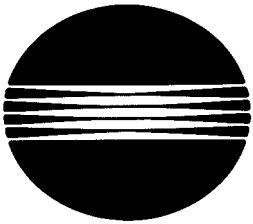
EP6000

TROUBLESHOOTING



MINOLTA

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1 INTRODUCTION

1-1. General Precautions

1. When servicing the copier with its covers removed, use utmost care to prevent your hands, clothing, and tools from being caught in revolving parts including the chains and gears. When servicing the copier with the Lower Rear Cover removed, be sure to install the jig.
2. Before attempting to replace parts and unplug connectors, make sure that the power cord of the copier has been unplugged from the wall outlet.
3. Never create a closed circuit across connector pins except those specified in the text and on the printed circuit.
4. When creating a closed circuit and measuring a voltage across connector pins specified in the text, be sure to use the green wire (GND).
5. When the user is using a word processor or personal computer from the wall outlet of the same line, take necessary steps to prevent the circuit breaker from opening due to overloads.
6. Keep all disassembled parts in good order and keep tools under control so that none will be lost or damaged.

1-2. How to Use This Book

1. If a component on a PWB or any other functional unit including a motor is defective, the text only instructs you to replace the whole PWB or functional unit and does not give troubleshooting procedure applicable within the defective unit.
2. All troubleshooting procedures contained herein assume that there are no breaks in the harnesses and cords and all connectors are plugged into the right positions.
3. For the removal procedures of covers and parts, see DIS/REASSEMBLY, ADJUSTMENT.
4. The troubleshooting procedures are given in the order of greater frequency of trouble or order of operation.
5. The procedures preclude possible malfunctions due to noise and other external causes.

1-3. Reading the Text

1. The paper transport failure troubleshooting procedures are given according to the symptom. First identify the location where the paper is present and start the procedure for that particular location. For malfunction troubleshooting, start with step 1 and onward.
2. Make checks in numerical order of the steps and, if an item is checked okay, go to the next step.

Pattern 1

Step	Check Item	Result	Action
1	Is --?	YES	Do this.
2	Go to step 2 if it checks okay.		

Pattern 2

Step	Check Item	Result	Action
1	Is --?	YES	Do this.
		NO	Check that.
2		Go to step 2 if it checks okay.	

1-4. Method for Checking the Control Parts with Loads

To check the Control parts easier and safer, this copier allows the Technical Representative to determine whether a control part is fully operational and signals are input and output properly by changing or checking the I/O port data of the board IC with the copier in the standby state (including where a misfeed, malfunction or setting fault condition exists).

Procedure

1. On the circuit diagram accompanying the text, locate the I/O port of the control part which is probably faulty when a misfeed or malfunction occurs.
2. Select the function "I/O Port Data" of "I/O Check" in the Tech. Rep. mode and call up the screen which contains the port identified in Step 1) above. (See the SWITCHES ON PWBs Section.)
3. Change or check the input or output port data to check that the control part is operational and signals are input and output properly.
4. If the control part does not operate after the output port data has been changed, select "Board Check" of "I/O Check" in the Tech. Rep. mode and determine whether the cause of the problem is the board or any other functional unit.

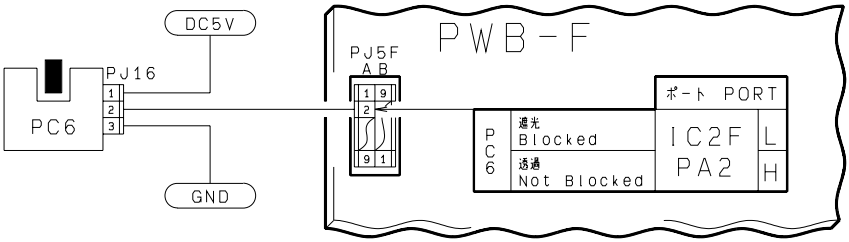
<Checking a Control Part with a load by changing the Input Port Data>

Example

The 1st Drawer Paper Take-Up Sensor PC6 is probably faulty when a misfeed occurs at the Paper Take-Up Section of the copier.

<Procedure>

1) Remove the misfed paper.
2) From the circuit diagram accompanying the text, the port for the input signal indicating that PC6 is HIGH or LOW is identified as PA2 on PWB-F (IC2F).



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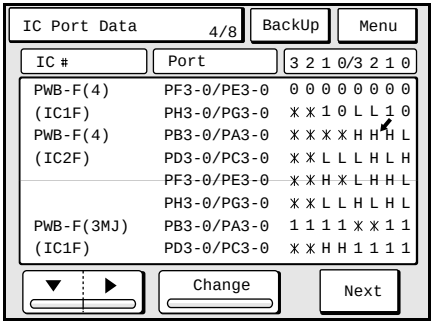
3) Select "IC Port Data Check" of "I/O Check" in the Tech. Rep. mode, and call up the screen which contains the PA2 input port on PWB-F (IC2F).


IC Port Data
4/8
BackUp
Menu
IC #
Port
3 2 1 0/3 2 1 0
PWB-F(4) PF3-0/PE3-0 0 0 0 0 0 0 0 0
(IC1F) PH3-0/PG3-0 ✳ ✳ 1 0 L L 1 0
PWB-F(4) PB3-0/PA3-0 ✳ ✳ ✳ ✳ H H H L
(IC2F) PD3-0/PC3-0 ✳ ✳ L L L H L H
PF3-0/PE3-0 ✳ ✳ H ✳ L H H L
PH3-0/PG3-0 ✳ ✳ L L H L H L
PWB-F(3MJ) PB3-0/PA3-0 1 1 1 1 ✳ ✳ 1 1
(IC1F) PD3-0/PC3-0 ✳ ✳ H H 1 1 1 1
Change
Next

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To ① on next page.

①

4) Make sure that the on-the-screen data of PA2 input port on PWB-F (IC2F) is "H" (sensor not blocked).

5) Move the Actuator of PC6 and block PC6 with paper, etc.
6) Return to the "I/O Check" menu screen, select "IC Port Data Check" again, call up the screen which contains the PA2 input port, and make sure that the data has changed from "H" to "L".

L: PC6 normal H: PC6 faulty

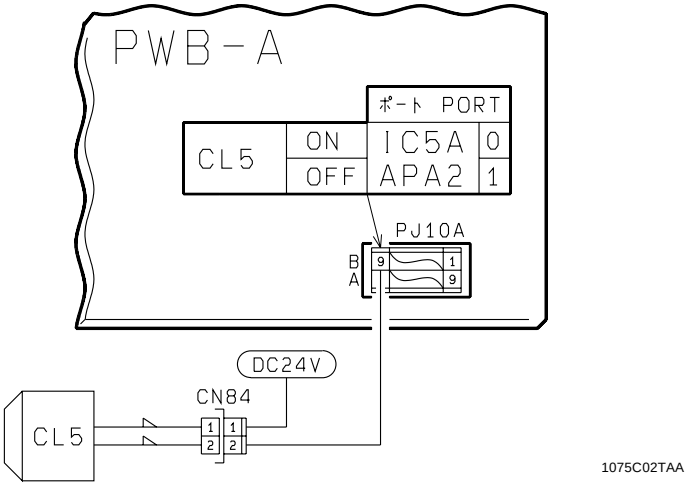
<Checking a Control Part with a load by changing the Output Port Data>

Example

The Manual Feed Paper Take-Up Clutch CL5 is probably faulty when a multi-bypass misfeed occurs.

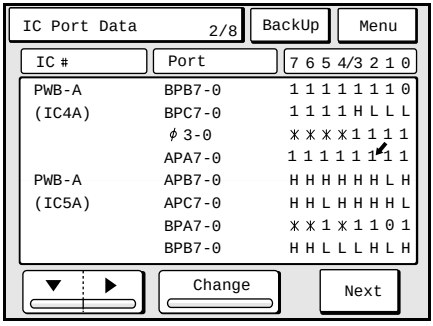
<Procedure>

1) Remove the misfed paper, and reset the misfeed.
2) From the circuit diagram accompanying the text, the port for the CL5 energization/deenergization output signal is identified as APA2 on PWB- A (IC5A).



1075C02TAA

3) Select "IC Port Data Check" of "I/O Check" in the Tech. Rep. mode, and call up the screen which contains the APA2 output port on PWB-A (IC5A).


IC Port Data 2/8
BackUp
Menu
IC #
Port
7 6 5 4/3 2 1 0
PWB-A (IC4A)
BPB7-0 1 1 1 1 1 1 1 0
BPC7-0 1 1 1 1 H L L L
φ3-0 ✳ ✳ ✳ ✳ 1 1 1 1
APA7-0 1 1 1 1 1 1 1 1
PWB-A (IC5A)
APB7-0 H H H H H H L H
APC7-0 H H L H H H H L
BPA7-0 ✳ ✳ 1 ✳ 1 1 0 1
BPB7-0 H H L L L H L H
Change
Next

1075T095CC

To ① on next page.

①

4) Make sure that the on-the-screen data of APA2 output port on PWB-A (IC5A) is "1" (CL5: deenergized).

5) Press the "Change" key on the screen to change the data from "1" to "0" and energize CL5 for approx. 5 seconds. Check if the clutch makes a sound or not to determine whether it is "normal" or "faulty".

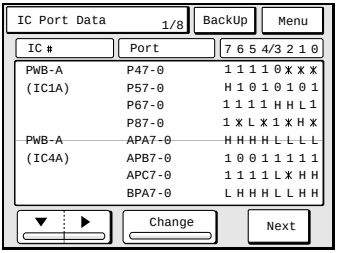
Normal: CL5 makes a sound. Faulty: CL5 does not make a sound.

6) If CL5 did not operate, make a "Board Check" in the Tech. Rep. mode. (Some electrical parts only)
7) The corresponding malfunction code is displayed if PWB-A does not output the CL5 energization signal.
∗: "C0326" is displayed for CL5.

— Port Check Screens —

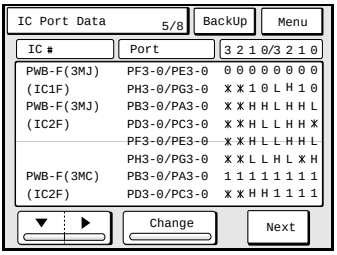
* The following screens are those in the standby state.

<Port Check 1/8>


IC Port Data 1/8
BackUp
Menu
IC #
Port
7 6 5 4/3 2 1 0
PWB-A P47-0 1 1 1 1 0 * * *
(IC1A) P57-0 H 1 0 1 0 1 0 1
P67-0 1 1 1 1 H H L 1
P87-0 1 * L * 1 * H *
PWB-A APA7-0 H H H H L L L L
(IC4A) APB7-0 1 0 0 1 1 1 1 1
APC7-0 1 1 1 1 L * H H
BPA7-0 L H H H L L H H
Change
Next

1075T096CB

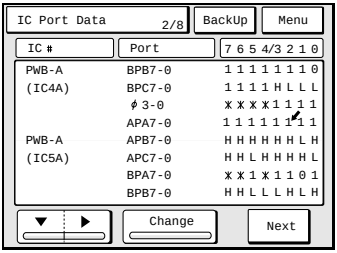
<Port Check 5/8>


IC Port Data 5/8
BackUp
Menu
IC #
Port
3 2 1 0/3 2 1 0
PWB-F(3MJ) PF3-0/PE3-0 0 0 0 0 0 0 0 0
(IC1F) PH3-0/PG3-0 * * 1 0 L H 1 0
PWB-F(3MJ) PB3-0/PA3-0 * * H H L H H L
(IC2F) PD3-0/PC3-0 * * H L L H H *
PF3-0/PE3-0 * * H L L H H L
PH3-0/PG3-0 * * L L H L * H
PWB-F(3MC) PB3-0/PA3-0 1 1 1 1 1 1 1 1
(IC2F) PD3-0/PC3-0 * * H H 1 1 1 1
Change
Next

1075T100CB

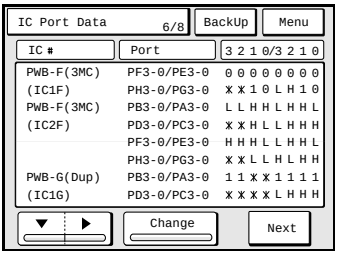
Note: 3MC: U.S.A. and Canada Aareas Only.

<Port Check 2/8>


IC Port Data 2/8
BackUp
Menu
IC #
Port
7 6 5 4/3 2 1 0
PWB-A BPB7-0 1 1 1 1 1 1 1 0
(IC4A) BPC7-0 1 1 1 1 H L L L
3-0 * * * * 1 1 1 1
APA7-0 1 1 1 1 1 1 1 1
PWB-A APB7-0 H H H H H H L H
(IC5A) APC7-0 H H L H H H H L
BPA7-0 * * 1 * 1 1 0 1
BPB7-0 H H L L L H L H
Change
Next

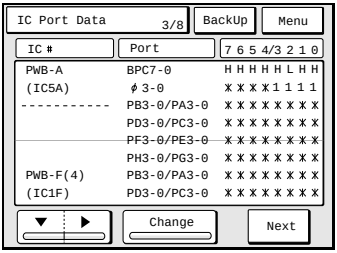
1075T095CC

<Port Check 6/8>


IC Port Data 6/8
BackUp
Menu
IC #
Port
3 2 1 0/3 2 1 0
PWB-F(3MC) PF3-0/PE3-0 0 0 0 0 0 0 0 0
(IC1F) PH3-0/PG3-0 * * 1 0 L H 1 0
PWB-F(3MC) PB3-0/PA3-0 L L H H L H H L
(IC2F) PD3-0/PC3-0 * * H L L H H H
PF3-0/PE3-0 H H H L L H H L
PH3-0/PG3-0 * * L L H L H H
PWB-G(Dup) PB3-0/PA3-0 1 1 * * 1 1 1 1
(IC1G) PD3-0/PC3-0 * * * * L H H H
Change
Next

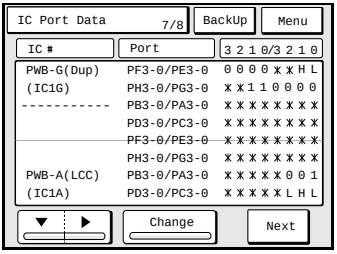
1075T101CB

<Port Check 3/8>


IC Port Data 3/8
BackUp
Menu
IC #
Port
7 6 5 4/3 2 1 0
PWB-A BPC7-0 H H H H H L H H
(IC5A) 3-0 * * * * 1 1 1 1
PB3-0/PA3-0 * * * * * * * *
PD3-0/PC3-0 * * * * * * * *
PF3-0/PE3-0 * * * * * * * *
PH3-0/PG3-0 * * * * * * * *
PWB-F(4) PB3-0/PA3-0 * * * * * * * *
(IC1F) PD3-0/PC3-0 * * * * * * * *
Change
Next

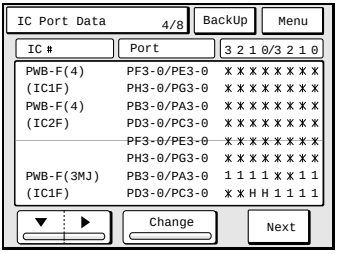
1075T098CC

<Port Check 7/8>


IC Port Data 7/8
BackUp
Menu
IC #
Port
3 2 1 0/3 2 1 0
PWB-G(Dup) PF3-0/PE3-0 0 0 0 0 * * H L
(IC1G) PH3-0/PG3-0 * * 1 1 0 0 0 0
PB3-0/PA3-0 * * * * * * * *
PD3-0/PC3-0 * * * * * * * *
PF3-0/PE3-0 * * * * * * * *
PH3-0/PG3-0 * * * * * * * *
PWB-A(LCC) PB3-0/PA3-0 * * * * * 0 0 1
(IC1A) PD3-0/PC3-0 * * * * * L H L
Change
Next

1075T102CA

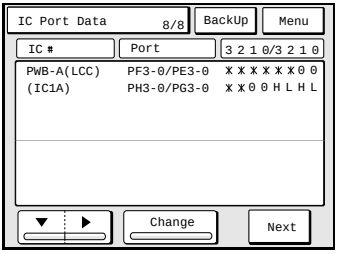
<Port Check 4/8>


IC Port Data 4/8
BackUp
Menu
IC #
Port
3 2 1 0/3 2 1 0
PWB-F(4) PF3-0/PE3-0 * * * * * * * *
(IC1F) PH3-0/PG3-0 * * * * * * * *
PWB-F(4) PB3-0/PA3-0 * * * * * * * *
(IC2F) PD3-0/PC3-0 * * * * * * * *
PF3-0/PE3-0 * * * * * * * *
PH3-0/PG3-0 * * * * * * * *
PWB-F(3MJ) PB3-0/PA3-0 1 1 1 1 * * 1 1
(IC1F) PD3-0/PC3-0 * * H H 1 1 1 1
Change
Next

1075T111CA

Note: 3MJ: Except for U.S.A. and Canada Aareas.

<Port Check 8/8>

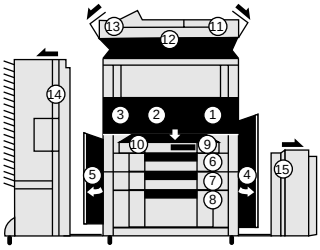


1075T103CA

2 PAPER TRANSPORT FAILURE

1. Paper Misfeed

When a paper misfeed occurs in the copier, the misfeed message, misfeed location, and paper location are displayed on the screen.



1075T110CA

Blinking	Misfeed location
Lit	Paper location

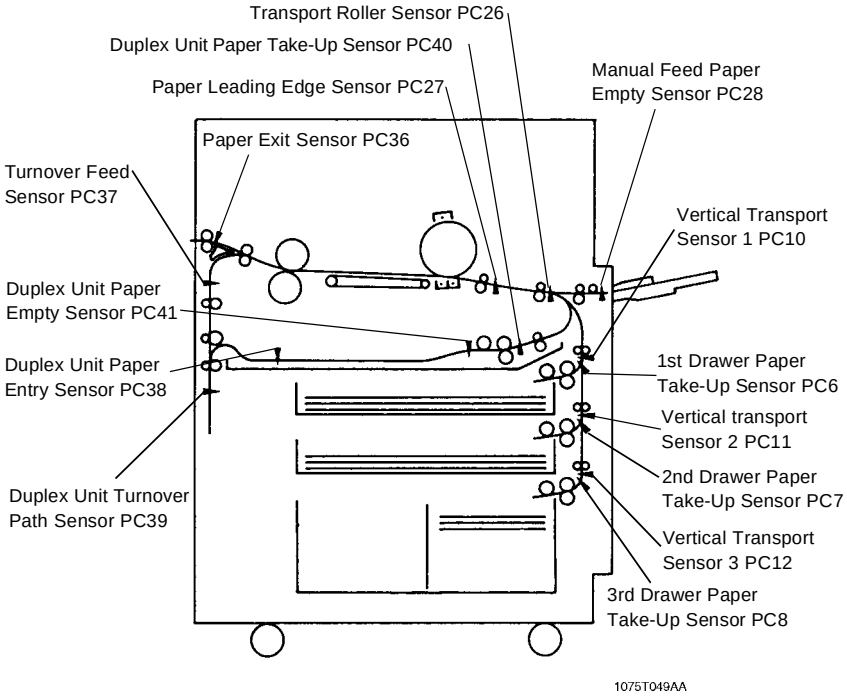
Blinking/Lit	Misfeed/Paper Location	Ref. Page	OP
①	Multi bypass take-up and copier transport	3-1/3-3	
②	Transport/Separator	3-2	
③	Fusing/Exit	3-4	
④	Copier transport	3-1	
⑤	Duplex Unit transport	3-5	
⑥	1st Drawer take-up	3-1	
⑦	2nd Drawer take-up	3-1	
⑧	3rd Drawer take-up	3-1	
⑨	Duplex Unit take-up	3-6	
⑩	Duplex Unit storage	3-5	
⑪	Automatic/Duplexing Document Feeder take-up	See the relevant option manual.	
⑫	Automatic/Duplexing Document Feeder transport		
⑬	Automatic/Duplexing Document Feeder turnover/exit		
⑭	Sorter		*
⑮	LCT		*

*: When an option is installed

<Misfeed display resetting method>

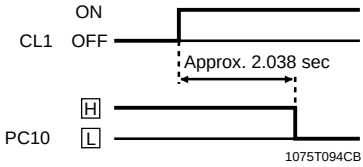
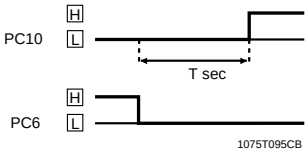
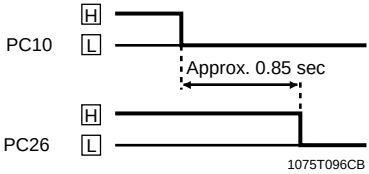
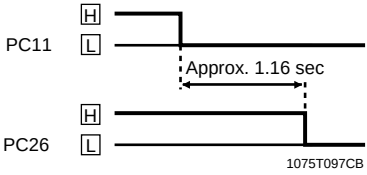
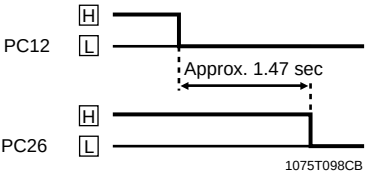
Misfeed in the copier	Open/close the Front Door.
Misfeed in the option	Open/close or re-connect the option.

<Misfeed Detection Sensor Layout>

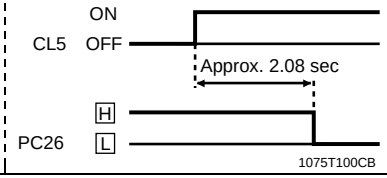

Transport Roller Sensor PC26
Duplex Unit Paper Take-Up Sensor PC40
Paper Leading Edge Sensor PC27
Manual Feed Paper Empty Sensor PC28
Paper Exit Sensor PC36
Turnover Feed Sensor PC37
Vertical Transport Sensor 1 PC10
Duplex Unit Paper Empty Sensor PC41
Duplex Unit Paper Entry Sensor PC38
1st Drawer Paper Take-Up Sensor PC6
Vertical transport Sensor 2 PC11
2nd Drawer Paper Take-Up Sensor PC7
Duplex Unit Turnover Path Sensor PC39
Vertical Transport Sensor 3 PC12
3rd Drawer Paper Take-Up Sensor PC8
1075T049AA

2. Types of Misfeed Detection and Detection Timings

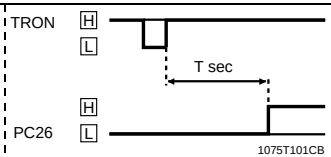
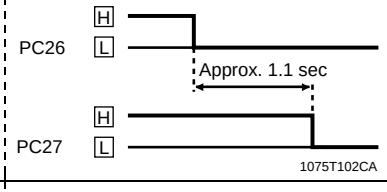
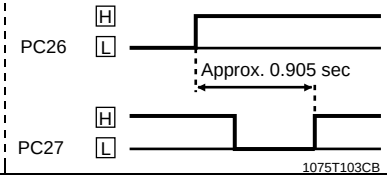
<Paper Take-Up Misfeed>

Type	Detection Timing	
Paper take-up failure detection	The Vertical Transport Sensor 1 PC10 is not blocked (L) approx. 2.038 second after the 1st Drawer Paper Take-Up Clutch CL1 is energized. Note: This also applies to the 2nd and 3rd Drawers.	
Paper take-up trailing edge detection	The 1st Drawer Paper Take-Up Sensor PC6 is not unblocked (H) "T" seconds (Which depends on the Paper Size) after the Vertical Transport Sensor 1 PC10 is blocked (L). Note: This also applies to the 2nd and 3rd Drawers.	 A3 lengthwise. : T = approx.1.8 sec
Leading edge detection by Transport Roller Sensor PC26	PC26 is not blocked (L) approx. 0.85 second after the Vertical Transport Sensor 1 PC10 is blocked (L).	
	PC26 is not blocked (L) approx. 1.16 seconds after the Vertical Transport Sensor 2 PC11 is blocked (L).	
	PC26 is not blocked (L) approx. 1.47 seconds after the Vertical Transport Sensor 3 PC12 is blocked (L).	

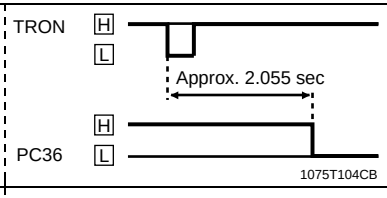
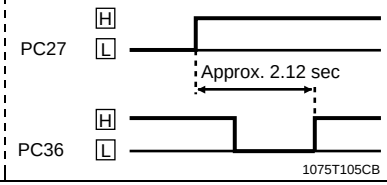
<Multi Bypass Misfeed>

Type	Detection Timing	
Bypass paper take-up failure detection	The Transport Roller Sensor PC26 is not blocked (L) approx. 2.08 second after the Manual Feed Paper Take-Up Clutch CL5 is energized.	

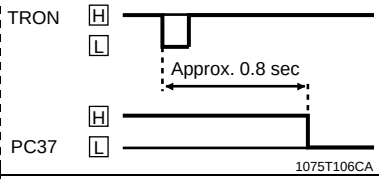
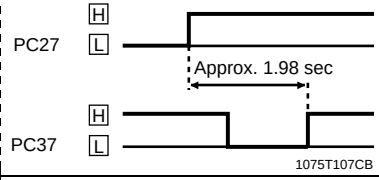
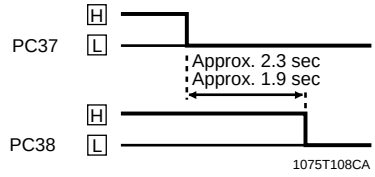
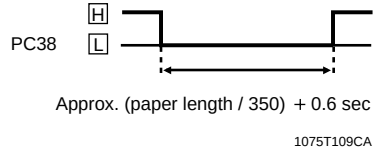
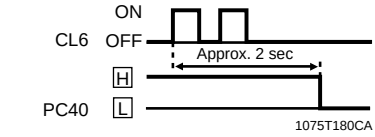
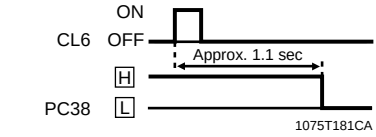
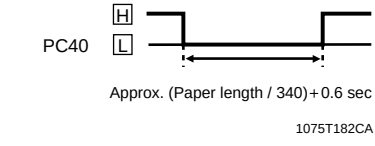
<Transport/Separator Misfeed>

Type	Detection Timing	
Trailing edge detection by Transport Roller Sensor PC26	PC26 is not unblocked (H) "T" seconds (Which depends on the Paper Size) after the TRON signal is input.	 A3 lengthwise. : T = approx.1.57 sec
Leading edge detection by Paper Leading Edge Sensor PC27	PC27 is not blocked (L) approx. 1.1 seconds after the Transport Roller Sensor PC26 is blocked (L).	
Trailing edge detection by Paper Leading Edge Sensor PC27	PC27 is not unblocked (H) approx. 0.905 seconds after the Transport Roller Sensor PC26 is unblocked (H).	

<Fusing/Exit Misfeed>

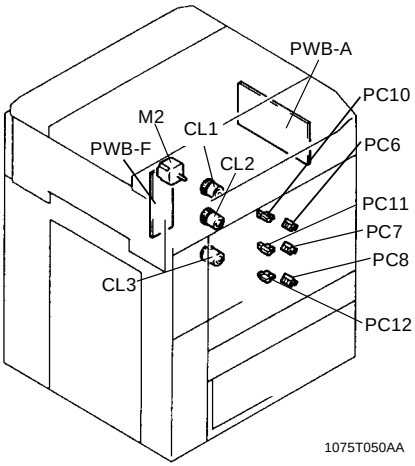
Type	Detection Timing	
Leading edge detection by Paper Exit Switch PC36	PC36 is not blocked (L) approx. 2.055 seconds after the TRON signal is input.	
Trailing edge detection by Paper Exit Switch PC36	PC36 is not unblocked (H) approx. 2.12 seconds after the Paper Leading Edge Sensor PC27 is unblocked (H).	

<Duplex Unit Paper Take-Up Misfeed>

Type	Detection Timing	
Leading edge detection by Turnover Feed Sensor PC37	PC37 is not blocked (L) approx. 1.92 seconds after the TRON signal is input.	
Trailing edge detection by Turnover Feed Sensor PC37	PC37 is not unblocked (H) approx. 1.98 seconds after the Paper Leading Edge Sensor PC27 is unblocked (H).	
Leading edge detection by Duplex Unit Paper Entry Sensor PC38	PC38 is not blocked (L) within approx. 2.3 seconds (paper length of 301mm or more) or 1.9 seconds (paper length of 300mm or less) after the Turnover Feed Sensor PC37 is blocked (L).	
Trailing edge detection by Duplex Unit Paper Entry Sensor PC38	PC38 is not unblocked (H) within approx. (paper length/350) + 0.6 seconds after it has been blocked (L).	
Duplex Unit paper take-up fault detection	The Duplex Unit Paper Take-Up Sensor PC40 is not blocked (L) within approx. 2 seconds after the Duplex Unit Paper Take-Up Clutch CL6 has been energized.	
Pre-fed paper take-up failure detection	PC40 is not blocked (L) within approx. 1.1 seconds after CL6 has been energized.	
Trailing edge detection by Duplex Unit Paper Take-Up Sensor PC40	PC40 is not unblocked (H) within approx. (paper length/340) + 0.6 seconds after it has been blocked (L).	

3. Misfeed Clearing Procedures

3-1. Copier Take-Up Misfeed



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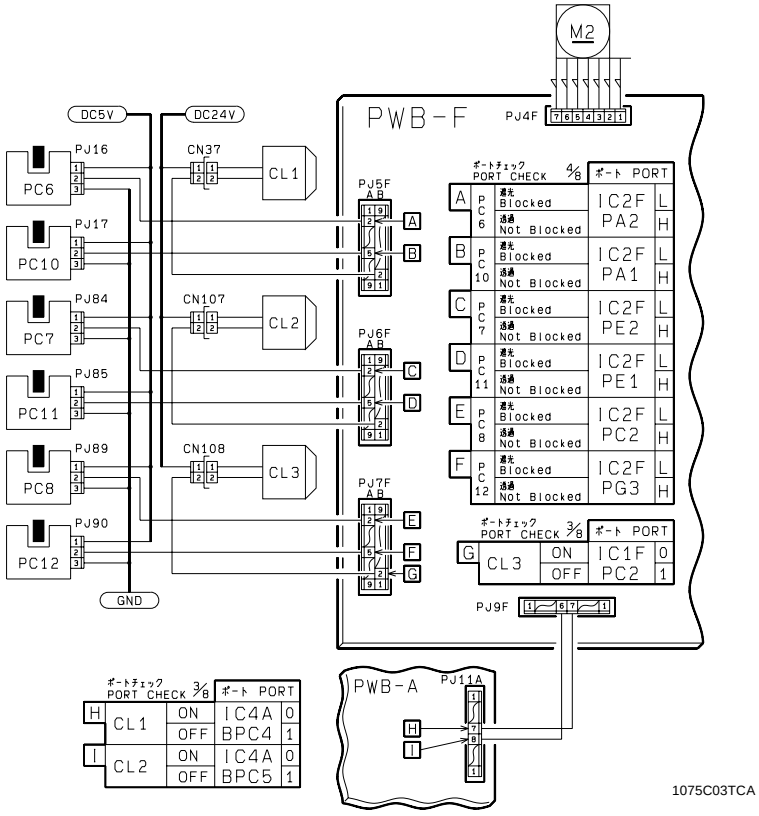
Symbol	Name
CL1	1st Drawer Paper Take-Up Clutch
CL2	2nd Drawer Paper Take-Up Clutch
CL3	3rd Drawer Paper Take-Up Clutch
M2	Vertical Transport Motor
PC6	1st Drawer Paper Take-Up Sensor
PC7	2nd Drawer Paper Take-Up Sensor
PC8	3rd Drawer Paper Take-Up Sensor
PC10	Vertical Transport Sensor 1
PC11	Vertical Transport Sensor 2
PC12	Vertical Transport Sensor 3
PWB-A	Master Board
PWB-F	Drawer S/P Board



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<Copier Take-Up Misfeed Clearing Procedure>

Symptom	Step	Check Item	Result	Action
• Paper is not taken up at all. • Paper is at a stop before the Vertical Transport Sensor.	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, wavy or damp?	YES	Change the paper. Instruct the user on the storage of paper.
	3	Does the Paper (Length/Width) Guide (of the drawer) position match the paper used?	NO	Change the Guide mounting position.
	4	Are the Paper Take-Up Roll and Paper Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or change the Paper Take-Up Roll and/or Paper Separator Roll.
	5	— When the 1st Drawer is used — Check the operation of the Paper Take-Up Clutch CL1. 1) Remove the misfed paper and reset the misfeed. 2) Select "IC Port Data Check".	—	————————
		3) Is the data of BPC4 on PWB-A (IC4A) "1"? (See the 2/8 screen on T-7)	NO	Change PWB-A.
		4) By pressing the "Change" key to change the data from "1" to "0", does CL1 operate? (Check that CL1 makes a sound.)	YES	Proceed to Step 6, or check PC6.
		5) By making a "Board Check", is the malfunction code "C033D" displayed?	YES	Change PWB-A.
			NO	Change CL1.
	6	Is the Paper Take-Up Guide Plate dirty or deformed?	YES	Clean or change the Paper Take-Up Guide Plate.

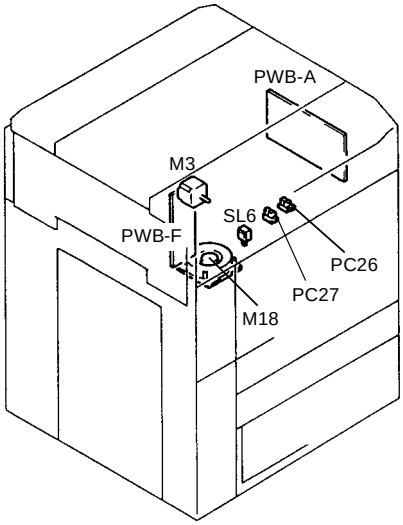
Symptom	Step	Check Item	Result	Action
• Paper is at a stop before the Vertical Transport Sensor.	1	— When the 2nd Drawer is used — Check the operation of Paper Take-Up Clutch CL2. 1) Remove the misfed paper and reset the misfeed. 2) Select "IC Port Data Check".	—	———————
		3) Is the data of BPC5 on PWB-A (IC4A) "1"? (See the 2/8 screen on T-7.)	NO	Change PWB-A.
		4) By pressing the "Change" key to change the data from "1" to "0", does CL2 operate? (Check that CL2 makes a sound.)	YES	Proceed to Step 2, or check PC7.
		5) By making a "Board Check", is the malfunction code "C03E" displayed?	YES	Change PWB-A.
			NO	Change CL2.
	2	Is the Paper Take-Up Guide Plate dirty or deformed?	YES	Clean or change the Paper Take-Up Guide Plate.
	1	— When the 3rd Drawer is used — Check the operation of Paper Take-Up Clutch CL3. 1) Remove the misfed paper and reset the misfeed. 2) Select "IC Port Data Check".	—	———————
		3) Is the data of PC2 on PWB-F (IC1F) "1"? (See the 4/8 or 5/8 screen on T-7.)	NO	Change PWB-F or PWB-A.
		4) By pressing the "Change" key to change the data from "1" to "0", does CL3 operate? (Check that CL3 makes a sound.)	YES	Proceed to Step 2, or check PC8.
			NO	Change CL3.
	2	Is the Paper Take-Up Guide Plate dirty or deformed?	YES	Clean or change the Paper Take-Up Guide Plate.

Symptom	Step	Check Item	Result	Action
• Paper is at a stop in the Vertical Transport Section.	1	Are the Vertical Transport Rollers deformed, worn, or dirty with paper dust?	YES	Clean or change the Vertical Transport Rollers.
	2	Is the Paper Take-Up or Vertical Transport Guide Plate deformed or dirty?	YES	Clean, correct, or change.
	3	Does Vertical Transport Motor M2 rotate when the Start Key is turned ON?	YES	Check for overload.
			NO	Change PWB-F, PWB-A or M2.
	4	— When the 1st Drawer is used — Check 1st Drawer Paper Take-Up Sensor PC6 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	———————
		3) Is the data of PA2 on PWB-F (IC2F) "H"? (See the 5/8 or 6/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC6.	—	———————
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of PA2 changed from "H" to "L"?	NO	Change PC6.
	5	Check the Vertical Transport Sensor 1 PC10. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	———————
		3) Is the data of PA1 on PWB-F (IC2F) "H"? (See the 5/8 or 6/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC10.	—	———————
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of PA1 changed from "H" to "L"?	YES	Change PWB-F or PWB-A.
			NO	Change PC10.

Symptom	Step	Check Item	Result	Action
• Paper is at a stop in the Vertical Transport Section.	1	— When the 2nd Drawer is used — Check the 2nd Drawer Paper Take-Up Sensor PC7. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	———
		3) Is the data of PE2 on PWB-F (IC2F) "H". (See the 5/8 or 6/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC7.	—	———
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of PE2 changed from "H" to "L"?	NO	Change PC7.
	2	Check the Vertical Transport Sensor 2 PC11. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	———
		3) Is the data of PE1 on PWB-F (IC2F) "H". (See the 5/8 or 6/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC11.	—	———
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of PE1 changed from "H" to "L"?	YES	Change PWB-F or PWB-A.
			NO	Change PC11.
	1	— When the 3rd Drawer is used — Check 3rd Drawer Paper Take-Up Sensor PC8. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	———
		3) Is the data of PC2 on PWB-F (IC2F) "H". (See the 5/8 or 6/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC8.	—	———
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of PC2 changed from "H" to "L"?	NO	Change PC8.

Symptom	Step	Check Item	Result	Action
• Paper is at a stop in the Vertical Transport Section.	2	Check the Vertical Transport Sensor 3 PC12. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	_____
		3) Is the data of PG3 on PWB-F (IC2F) "H". (See the 5/8 or 6/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC12.	—	_____
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of PG3 changed from "H" to "L"?	YES	Change PWB-F or PWB-A.
			NO	Change PC12.

3-2. Transport/Separator Misfeed



Symbol	Name
M3	Transport Motor
M18	Suction Fan Motor
PC26	Transport Roller Sensor
PC27	Paper Leading Edge Sensor
SL6	Separator Fingers Solenoid
PWB-A	Master Board
PWB-F	Drawer S/P Board

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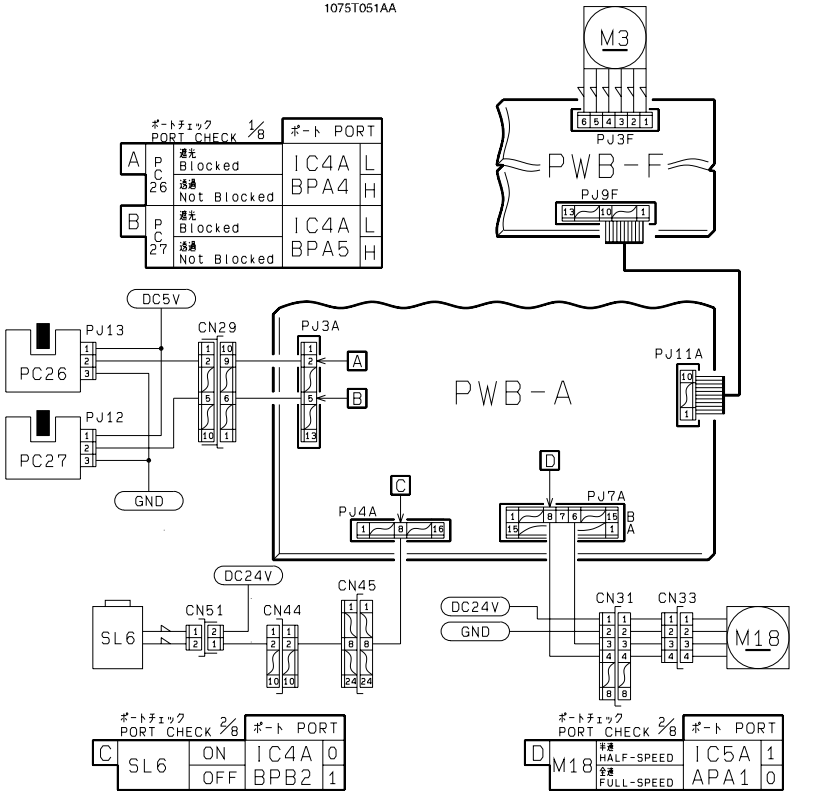

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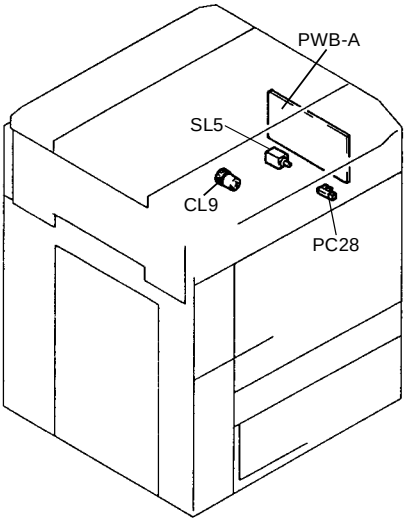
<Transport/Separator Misfeed Clearing Procedure>

Symptom	Step	Check Item	Result	Action
• Paper is at a stop in the Transport Roller Section.	1	Are the Transport Rollers deformed, worn, or dirty with paper dust?	YES	Clean or change.
	2	Does the Transport Motor M3 rotate when the Start Key is turned ON?	YES	Check for overload.
			NO	Change PWB-F, PWB-A or M3.
	3	Check the Transport Roller Sensor PC26. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	_____
		3) Is the data of BPA4 on PWB-A (IC4A) "H". (See the 1/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC26.	—	_____
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of BPA4 changed from "H" to "L"?	YES	Change PWB-A.
			NO	Change PC26.
• Paper is at a stop at the Synchronizing Rollers.	1	Are the Synchronizing Rollers deformed, worn, or dirty with paper dust?	YES	Clean or change the Synchronizing Rollers.
	2	Is a proper length of loop formed before the Synchronizing Rollers?	NO	Select "Loop Adjust (Drawer)" or "Loop Adjust (Man/LCT)" in the Tech. Rep. Choice mode and adjust the length of the paper loop.
	3	Refer to Step 3 above and check Transport Roller Sensor PC26.	—	_____
	4	Check Paper Leading Edge Sensor PC27. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	_____
		3) Is the data of BPA5 on PWB-A (IC4A) "H". (See the 1/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC27.	—	_____
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of BPA5 changed from "H" to "L"?	YES	Change PWB-A.
			NO	Change PC27.

Symptom	Step	Check Item	Result	Action
• Paper is at a stop near the PC Drum.	1	Is the Pre-Image Transfer Guide Plate deformed or dirty?	YES	Clean, correct or change the Guide Plate.
	2	Are the Image Transfer/Paper Separator Corona Wires dirty or deteriorated?	YES	Clean or change the Corona Wires.
	3	Is the Paper Guide above the Paper Separator Corona dirty or deformed?	YES	Clean or change the Paper Guide.
	4	Are the Synchronizing Rollers deformed, worn, or dirty with paper dust?	YES	Clean or change the Synchronizing Rollers.
	5	Check the Paper Separator Corona Remote signal from PWB-A. Does the malfunction code "C034A" appear when a "Board Check" is made?	YES	Change PWB-A.
			NO	Change the Image Transfer/Paper Separator Coronas Unit or the High Voltage Unit HV2.
• Paper is wedged at the Drum Paper Separator Fingers.	1	Are the Drum Paper Separator Fingers dirty or deformed?	YES	Clean or change the Separator Fingers.
	2	Check the operation of the Separator Fingers Solenoid SL6. 1) Remove the misfed paper and reset the misfeed. 2) Select "IC Port Data Check".	—	———
		3) Is the data of BPB2 on PWB-A (IC4A) "1". (See the 2/8 screen on T-7.)	NO	Change PWB-A.
		4) By pressing the "Change" key to change the data from "1" to "0", does SL6 operate? (Check that SL6 makes a sound.)	YES	Adjust the solenoid stroke.
		5) By making a "Board Check", is the malfunction code "C031F" displayed?	YES	Change PWB-A.
			NO	Change SL6.

Symptom	Step	Check Item	Result	Action
• Paper is at a stop on the Suction Belts.	1	When the Main Drive Motor is run, do the Suction Belts turn?	NO	Check the drive gear and timing belt.
	2	Check whether the Suction Fan Motor M18 is switched from half speed to full speed when the Start Key is turned ON. 1) Remove the misfed paper and reset the misfeed. 2) Select "IC Port Data Check".	—	————————
		3) Is the data of APA1 on PWB-A (IC5A) "1" when M18 is running at half speed? (See the 2/8 screen on T-7.)	NO	Change PWB-A.
		4) By pressing the "Change" key to change the data from "1" to "0", is M18 switched from half speed to full speed?	NO	Check the Suction Belts.
		5) By making a "Board Check", is the malfunction code "C0330" displayed?	YES	Change PWB-A.
			NO	Change M18.

3-3. Multi Bypass Misfeed



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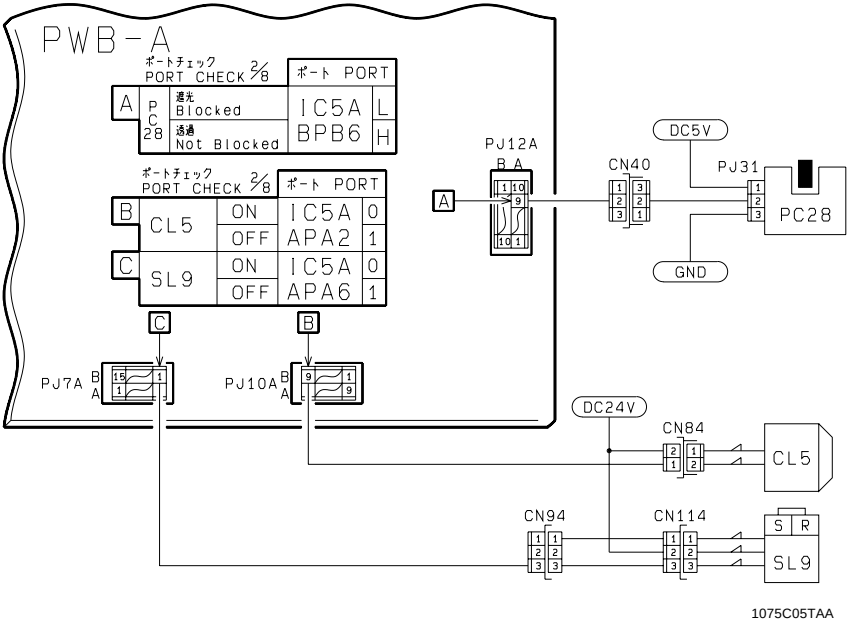
Symbol	Name
CL5	Manual Feed Paper Take-Up Clutch
PC28	Manual Feed Paper Empty Sensor
SL9	Manual Feed Paper Pick-Up Solenoid
PWB-A	Master Board



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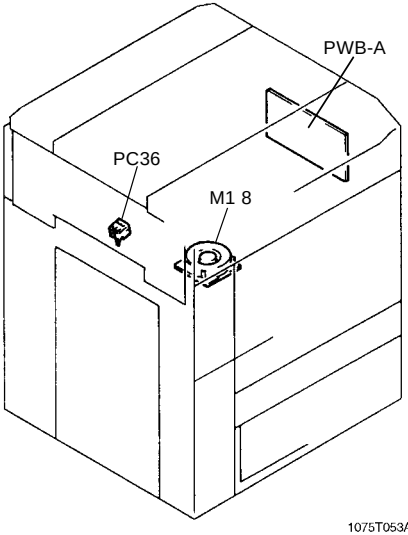
<Multi Bypass Misfeed Clearing Procedure>

Symptom	Step	Check Item	Result	Action
• Paper is not taken up at all.	1	Is the paper fed out of the copier properly when it is taken up and fed in from the copier drawer?	NO	Refer to the section on Copier Take-Up Misfeed.
	2	Is the Manual Feed indicator displayed on the screen when a sheet of paper is placed on the Multi Bypass Table.	YES	To Step 4.
	3	Check Manual Feed Paper Empty Sensor PC28. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	_____
		3) Is the data of BPB6 on PWB-A (IC5A) "H" with no paper placed on the Multi Bypass Table? (See the 2/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Place a sheet of paper on the Multi Bypass Table to block PC28.	—	_____
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of BPB6 changed from "H" to "L"?	YES	Change PWB-A.
			NO	Change PC28.
	4	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	5	Is the paper curled, wavy or damp?	YES	Change the paper. Instruct the user on the storage of paper.

Symptom	Step	Check Item	Result	Action
• Paper is not taken up at all.	6	Check the operation of Manual Feed Paper Pick-Up Solenoid SL9. 1) Remove the misfed paper and reset the misfeed. 2) Select "IC Port Data Check".	—	———————
		3) Is the data of APA6 on PWB-A (IC5A) "1"? (See the 2/8 screen on T-7.)	NO	Change PWB-A.
		4) By pressing the "Change" key to change the data from "1" to "0", does SL9 operate to lower the Paper Take-Up Rolls?	YES	To Step 8.
		5) By making a "Board Check", is the malfunction code "C0316" displayed?	YES	Change PWB-A.
			NO	Change SL9 or adjust its stroke.
	7	Check the operation of Manual Feed Paper Take-Up Clutch CL5. 1) Remove the misfed paper and reset the misfeed. 2) Select "IC Port Data Check".	—	———————
		3) Is the data of APA2 on PWB-A (IC5A) "1"? (See the 2/8 screen on T-7.)	NO	Change PWB-A.
		4) By pressing the "Change" key to change the data from "1" to "0", does CL5 operate? (Check that CL5 makes a sound.)	YES	To Step 8.
		5) By making a "Board Check", is the malfunction code "C0326" displayed?	YES	Change PWB-A.
			NO	Change CL5.
	8	Are the Pressure Pad and Guide Plate dirty or deformed?	YES	Clean or change the Pressure Pad and Guide Plate.
	9	Are the Manual Feed Paper Take-Up Rolls deformed, worn, or dirty with paper dust?	YES	Clean or change the Manual Feed Take-Up Rolls.

3-4. Fusing/Exit Misfeed



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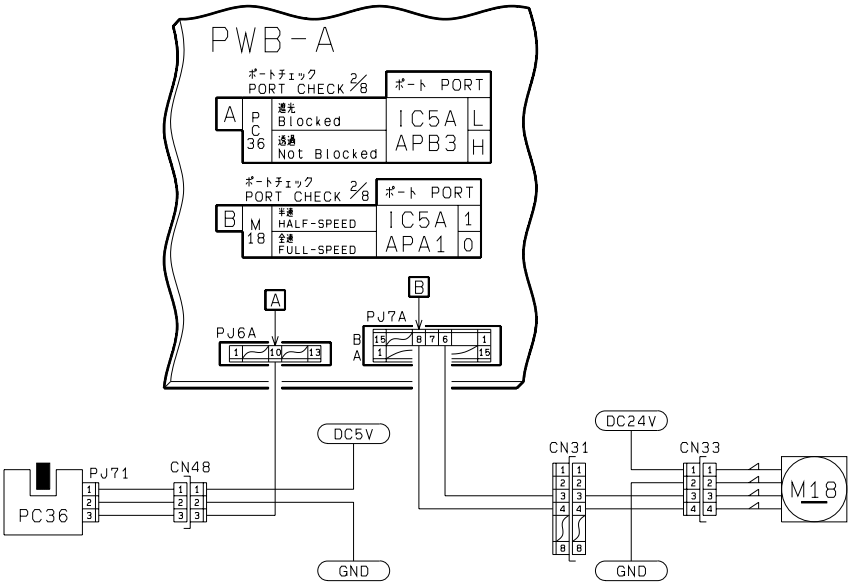
Symbol	Name
M18	Suction Fan Motor
PC36	Paper Exit Sensor
PWB-A	Master Board



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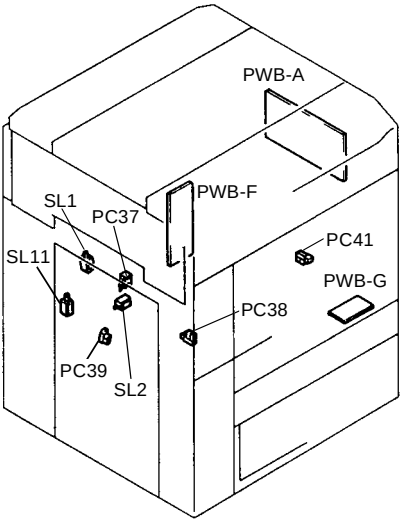
<Fusing/Exit Misfeed Clearing Procedure>

Symptom	Step	Check Item	Result	Action
• Paper is at a stop before the Fusing Roller.	1	Is the Fusing Guide Plate dirty or deformed?	YES	Clean or change the Fusing Guide Plate.
	2	Refer to Section 3-2 "Transport/Separator Misfeed" and check the Suction Fan Motor M18.	—	————————
• Paper is at a stop in the Fusing Roller Section.	1	Are the Fusing Rollers dirty or scratched?	YES	Clean or change the Fusing Rollers.
	2	Are the Fusing Roller Paper Separator Fingers dirty, worn or deformed?	YES	Clean or change the Paper Separator Fingers.
	3	Is the Oil Roller dirty?	YES	Clean or change the Oil Roller.
• Paper is at a stop in the Paper Exit Section.	1	Check the Paper Exit Sensor PC36. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	————————
		3) Is the data of APB3 on PWB-A (IC5A) "H"? (See the 2/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC36.	—	————————
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of APB3 changed from "H" to "L"?	YES	Change PWB-A.
			NO	Change PC36.

3-5. Duplex Unit Transport/Entry Misfeed



Symbol	Name
PC37	Turnover Feed Sensor
PC38	Duplex Unit Paper Entry Sensor
PC39	Duplex Unit Turnover Path Sensor
PC41	Duplex Unit Paper Empty Sensor
SL1	Exit/Duplex Switching Solenoid
SL2	Duplex Unit Gate Switching Solenoid
SL11	Duplex Unit Turnover Switching Solenoid
PWB-A	Master Board
PWB-F	Drawer S/P Board
PWB-G	Duplex Unit S/P Board

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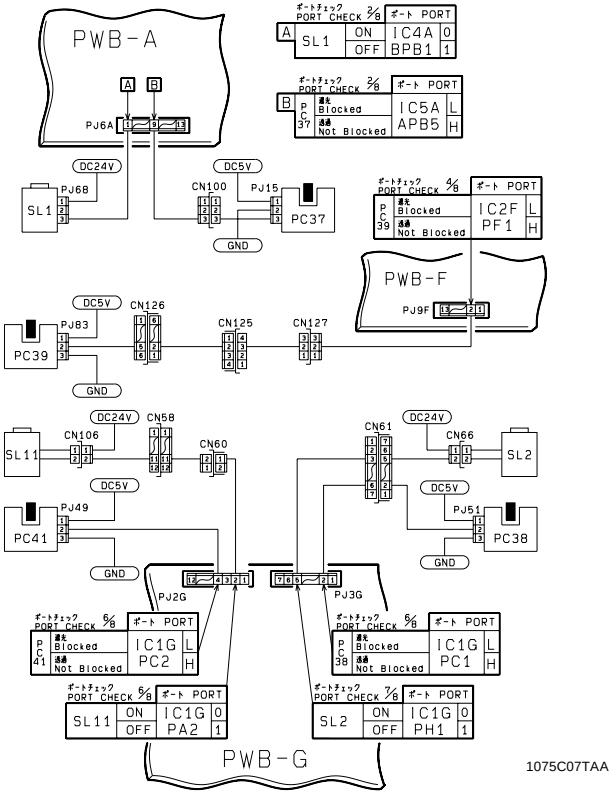

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<Duplex Unit Vertical Transport Misfeed Clearing Procedure>

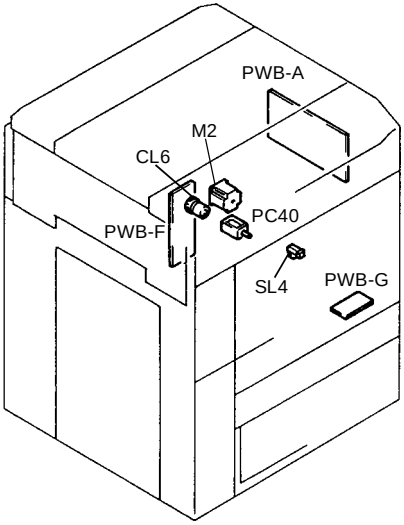
Symptom	Step	Check Item	Result	Action
• Paper is at a stop in the Exit Section.	1	Check the operation of the Exit/Duplex Switching Solenoid SL1. 1) Remove the misfed paper and reset the misfeed. 2) Select "IC Port Data Check".	—	———
		3) Is the data of BPB1 on PWB-A (IC4A) "1"? (See the 2/8 screen on T-7.)	NO	Change PWB-A.
		4) By pressing the "Change" key to change the data from "1" to "0", does SL1 operate? (Make sure that SL1 makes a sound.)	YES	Proceed to Step 2, or change SL1 or adjust its stroke.
		5) By making a "Board Check", is the malfunction code "C0321" displayed?	YES	Change PWB-A.
			NO	Change SL1.
	2	Are the Exit/Duplex Switching Plate and Upper and Lower Guide Plates dirty or deformed?	NO	Clean or change the Plates.
• Paper is at a stop in the Vertical Transport Section of the Duplex Unit.	1	Run the Duplex Unit Drive Motor M7 and check the operations of the Duplex Unit Vertical Transport Roll and Duplex Unit Drive Connection. 1) Open the left door. 2) Select "IC Port Data Check". 3) Press the "Change" key to change the data of PB3 on PWB-G (IC1G) from "1" to "0". (See the 6/8 screen on T-7.)	—	———
		4) Do the Duplex Unit Vertical Transport Roll and Duplex Unit Drive Connection operate properly?	NO	Check the gears, rollers and belts.
	2	Check the Turnover Feed Sensor PC37. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	———
		3) Is the data of APB5 on PWB-A (IC5A) "H"? (See the 2/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC37.	—	———
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of APB5 changed from "H" to "L"?	YES	Change PWB-A.
			NO	Change PC37.

Symptom	Step	Check Item	Result	Action
• Paper is at a stop in the Turnover Section of the Duplex Unit.	1	Refer to Step 1 above, run Duplex Unit Drive Motor M7, and check the operations of the Paddle Roller, Slip Roller and Duplex Unit Drive Connection.	—	———————
		Do the Paddle Roller, Slip Roller and Duplex Unit Drive Connection operate properly?	NO	Check the gears and rollers.
	2	Are the Paddle, Roller, Slip Roller and Release Lever worn, deformed, or dirty with paper dust?	YES	Clean or change the Rollers. Check the Release Lever mechanism.
	3	Check the operation of the Duplex Unit Turnover Switching Solenoid SL11. 1) Remove the misfed paper and reset the misfeed. 2) Select "IC Port Data Check".	—	———————
		3) Is the data of PA2 on PWB-G (IC1G) "1"? (See the 6/8 screen on T-7.)	NO	Change PWB-G.
		4) By pressing the "Change" key to change the data from "1" to "0", does SL11 operate? (Make sure that SL11 makes a sound.)	NO	Change SL11 or adjust its stroke.
	4	Check the Duplex Unit Turnover Path Sensor PC39. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	———————
		3) Is the data of PF1 on PWB-F (IC2F) "H"? (See the 5/8 or 6/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC39.	—	———————
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of PF1 changed from "H" to "L"?	YES	Change PWB-F or PWB-A.
			NO	Change PC39.

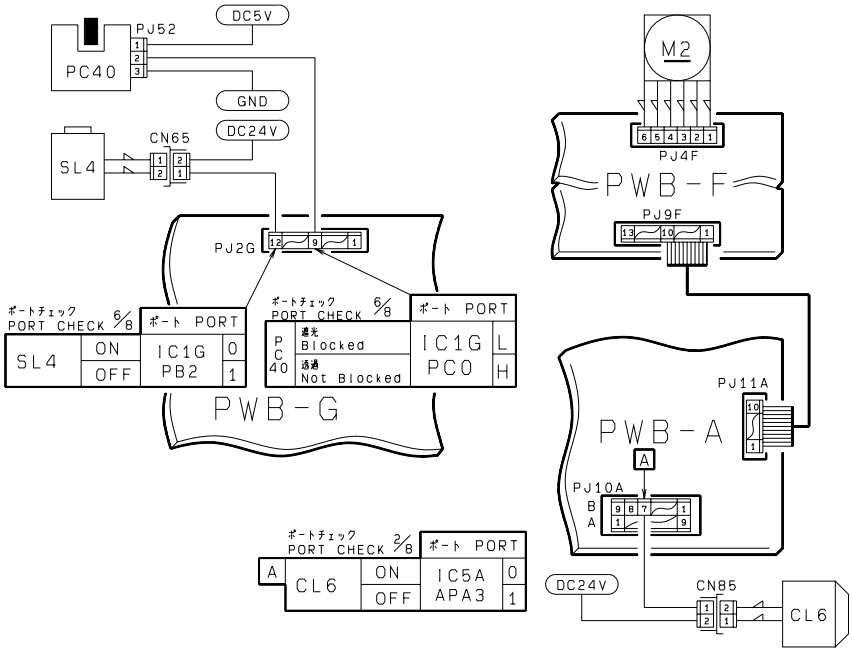
<Duplex Unit Entry Misfeed Clearing Procedure>

Symptom	Step	Check Item	Result	Action
• The leading edge of the paper is at a stop inside the Duplex Unit.	1	Is the Paper Guide Mylar dirty or deformed?	YES	Clean or change the Mylar.
	2	Check the Duplex Unit Paper Entry Sensor PC38. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	_____
		3) Is the data of PC1 on PWB-G (IC1G) "H"? (See the 6/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC38.	—	_____
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of PC1 changed from "H" to "L"?	NO	Change PC38.
	3	Check the Duplex Unit Gate Switching Solenoid SL2. 1) Remove the misfed paper and reset the misfeed. 2) Select "IC Port Data Check".	—	_____
		3) Is the data of PH1 on PWB-G (IC1G) "1"? (See the 7/8 screen on T-7.)	NO	Change PWB-G or PWB-A.
		4) By pressing the "Change" key to change the data from "1" to "0", does SL2 operate? (Make sure that SL2 makes a sound.)	YES	Change PWB-G or PWB-A.
			NO	Change SL2 or adjust its stroke.
• Paper is at a stop in the Entry Section.	1	Check the Duplex Unit Paper Empty Sensor PC41. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	_____
		3) Is the data of PC2 on PWB-G (IC1G) "H"? (See the 6/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC41.	—	_____
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of PC2 changed from "H" to "L"?	YES	Change PWB-G or PWB-A.
			NO	Change PC41.

3-6. Duplex Unit Take-Up Misfeed



Symbol	Name
CL6	Duplex Unit Paper Take-Up Clutch
M2	Vertical Transport Motor
PC40	Duplex Unit Paper Take-Up Sensor
SL4	Duplex Unit Paper Pick-Up Solenoid
PWB-A	Master Board
PWB-F	Drawer S/P Board
PWB-G	Duplex Unit S/P Board

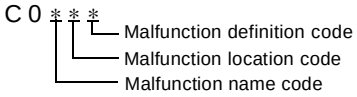


1075C08TAA

Symptom	Step	Check Item	Result	Action
• Paper is not taken up at all.	1	Are the Take-Up Roll, Feed Roll and Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or change the Rolls.
	2	Check the operation of the Duplex Unit Paper Pick-Up Solenoid SL4. 1) Remove the misfed paper and reset the misfeed. 2) Select "IC Port Data Check".	—	————————
		3) Is the data of PB2 on PWB-G (IC1G) "1"? (See the 6/8 screen on T-7.)	NO	Change PWB-G or PWB-A.
		4) By pressing the "Change" key to change the data from "1" to "0", does SL4 operate? (Make sure that SL4 makes a sound.)	YES	Check the Pick-Up Mechanism, or adjust the SL4 stroke.
			NO	Change SL4.
	3	Check the operation of the Duplex Unit Paper Take-Up Clutch CL6. 1) Remove the misfed paper and reset the misfeed. 2) Select "IC Port Data Check".	—	————————
		3) Is the data of PA3 on PWB-G (IC1G) "1"? (See the 6/8 screen on T-7.)	NO	Change PWB-G or PWB-A.
		4) By pressing the "Change" key to change the data from "1" to "0", does CL6 operate? (Make sure that CL6 makes a sound.)	YES	Change CL6.
		5) By making a "Board Check", is the malfunction code "C0347" displayed?	YES	Change PWB-G or PWB-A.
			NO	Change CL6.
• Paper is at a stop in the Vertical Transport Section.	1	Are the Vertical Transport Rollers and Guide Plate deformed, worn, or dirty with paper dust?	YES	Clean or change the Vertical Transport Rollers and Guide Plate.
	2	Is the Vertical Transport Motor M2 rotating when a copy is taken up and fed into the copier from the Duplex Unit?	YES	Check for overload.
			NO	Change PWB-F, PWB-A or M2
	3	Check the Duplex Unit Paper Take-Up Sensor PC40. 1) Remove the misfed paper. 2) Select "IC Port Data Check".	—	————————
		3) Is the data of PC0 on PWB-G (IC1G) "H"? (See the 6/8 screen on T-7.)	NO	Check the operation of the Actuator.
		4) Operate the Actuator to block PC40.	—	————————
		5) Return to the "I/O Check" menu screen and select "IC Port Data Check" again. Has the data of PC0 changed from "H" to "L"?	YES	Change PWB-G or PWB-A.
			NO	Change PC40.

3 MALFUNCTION

The copier CPU has a function to self-diagnose the copier conditions. On detection of a malfunction, the corresponding malfunction name, location and definition codes are shown on the Touch Panel of the copier together with a technical representative call message.



- Reset malfunctions and isolation malfunctions by the following procedures.

<Malfunction Resetting Procedure>

- Press the Trouble Reset Switch on the Tech. Rep. Settings Switches Board PWB-I for Exposure Lamp failures (C04＊＊) and Fusing failures (C05＊＊).
- Swing open and close the Front Door for any other malfunctions.
- Note that for malfunctions of original size detection, the Front Door should be opened and closed after the Power Switch is turned OFF and ON.
- Disconnect and connect the option or open and close the option door for malfunctions of options.

<Isolation Malfunction Resetting Procedure>

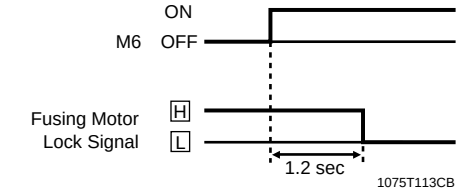
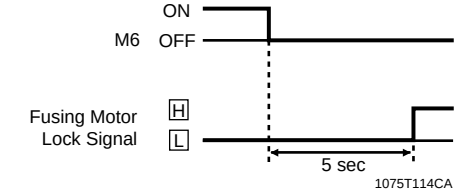
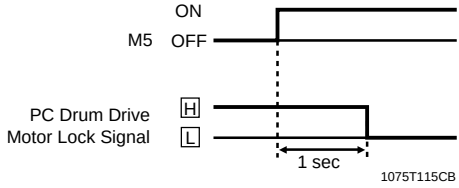
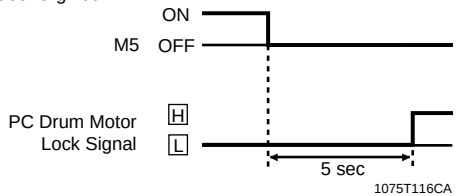
- Select "Machine Status" in the Tech. Rep. mode. With the malfunction code displayed, swing open and close the Front Door.
- For malfunctions of original size detection, turn the Power Switch OFF and ON, and select "Machine Status" in the Tech. Rep. mode. With the malfunction code displayed, swing open and close the Front Door.
- Pictorial symbols are used to indicate the isolation malfunctions of the Sorter. Reset these malfunctions by the following procedure:
  (1) Select "Tech. Rep. Choice" in the Tech. Rep. mode, and set the Sorter function to "Disable Copy".
  (2) Turn the Power Switch OFF and ON to access the malfunction code corresponding to the pictorial symbol.
  (3) Perform the troubleshooting procedure and turn the Power Switch OFF and ON.

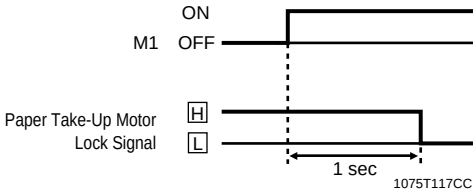
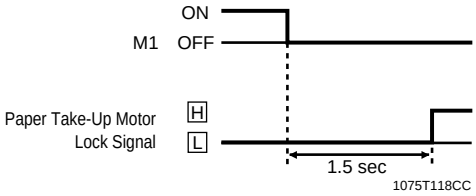
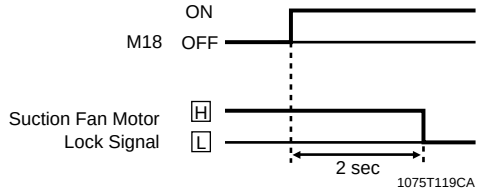
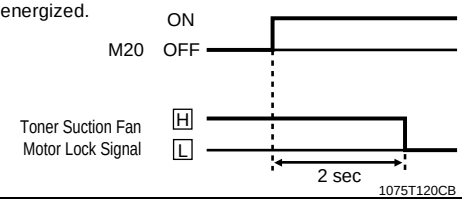
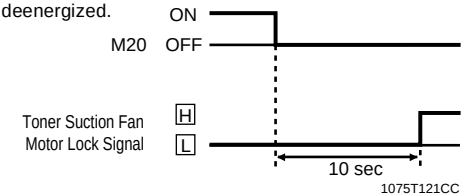
1. Detection Timing

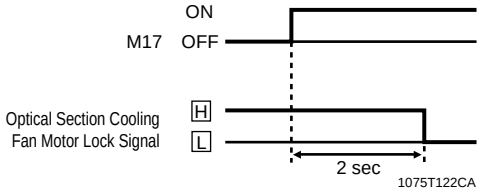
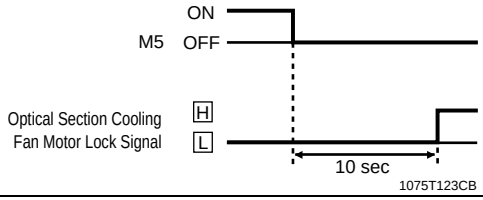
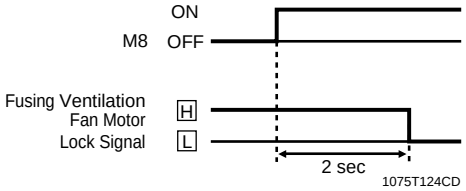
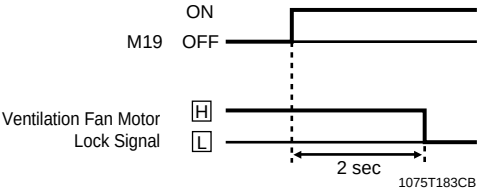
- The codes preceded by * apply to isolation malfunctions.

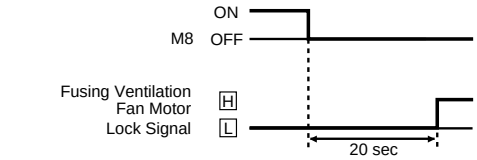
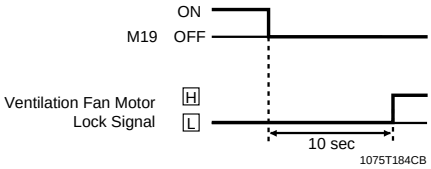
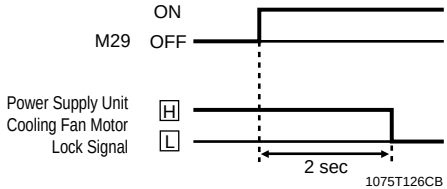
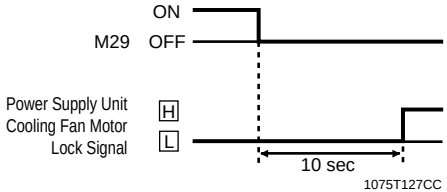
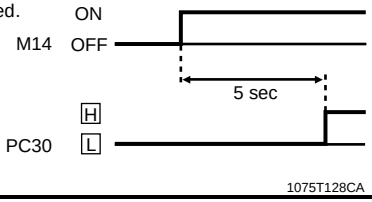
Copier-related malfunctions

C00** (Drive system malfunctions)

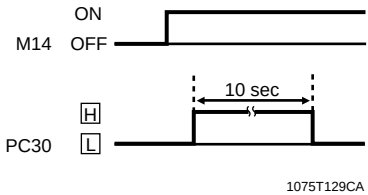
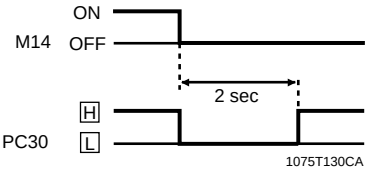
*	Code	Description	Detection Timing
	C0000	Fusing Motor M6's failure to turn	The Fusing Motor Lock signal remains HIGH for a continuous 1.2-second period after M6 has been energized. 
	C0001	Fusing Motor M6 turning at abnormal timing	The Fusing Motor Lock signal remains LOW for a continuous 5-second period after M6 has been deenergized. 
	C0010	PC Drum Drive Motor M5's failure to turn	The PC Drum Drive Motor Lock signal remains HIGH for a continuous 1-second period after M5 has been energized. 
	C0011	PC Drum Drive Motor M5 turning at abnormal timing	The PC Drum Drive Motor Lock signal remains LOW for a continuous 5-second period after M5 has been deenergized. 

*	Code	Description	Detection Timing
	C0020	Paper Take-Up Motor M1's failure to turn	The Paper Take-Up Motor Lock signal remains HIGH for a continuous 1-second period after M1 has been energized. 
	C0021	Paper Take-Up Motor M1 turning at abnormal timing	The Paper Take-Up Motor Lock signal remains LOW for a continuous 1.5-second period after M1 has been deenergized. 
	C0040	Suction Fan Motor M18's failure to turn	The PC Drum Motor Lock signal remains HIGH for a continuous 2-second period after M18 has been energized. 
	C0042	Toner Suction Fan Motor M20's failure to turn	The Toner Suction Fan Motor Lock signal remains HIGH for a continuous 2-second period after M20 has been energized. 
	C0043	Toner Suction Fan Motor M20 turning at abnormal timing	The Toner Suction Fan Motor Lock signal remains LOW for a continuous 10-second period after M20 has been deenergized. 

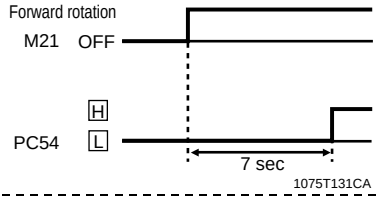
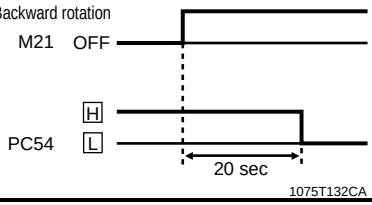
*	Code	Description	Detection Timing
	C004A	Optical Section Cooling Fan Motor M17's failure to turn	The Optical Section Cooling Fan Motor Lock signal remains HIGH for a continuous 2-second period after M17 has been energized. 
	C004b	Optical Section Cooling Fan Motor M17 turning at abnormal timing	The Optical Section Cooling Fan Motor Lock signal remains LOW for a continuous 10-second period after M17 has been deenergized. 
	C004c	Fusing Unit Ventilation Fan Motor M8's failure to turn Ventilation Fan Motor M19's failure to turn	<M8> The Fusing Ventilation Fan Motor Lock signal remains HIGH for a continuous 2- second period after M8 has been energized.  <M19> The Ventilation Fan Motor Lock signal remains HIGH for a continuous 2- second period after M19 has been energized. 

*	Code	Description	Detection Timing
	C004d	Fusing Unit Ventilation Fan Motor M8 turning at abnormal timing Ventilation Fan Motor M19 turning at abnormal timing	<M8> The Fusing Ventilation Fan Motor Lock signal remains LOW for a continuous 20-second period after M8 has been deenergized.  <M19> The Ventilation Fan Motor Lock signal remains LOW for a continuous 10-second period after M19 has been deenergized. 
	C004E	Power Supply Unit Cooling Fan Motor M29's failure to turn	The Power Supply Unit Cooling Fan Motor Lock signal remains HIGH for a continuous 2-second period after M29 has been energized. 
	C004F	Power Supply Unit Cooling Fan Motor M29 turning at abnormal timing	The Power Supply Unit Cooling Fan Motor Lock signal remains LOW for a continuous 10-second period after M29 has been deenergized. 
	C0070	Main Hopper Toner Replenishing Motor M14's failure to turn	The output from the Toner Bottle Home Position Sensor PC30 does not go HIGH within 5 seconds after M14 has been energized. 

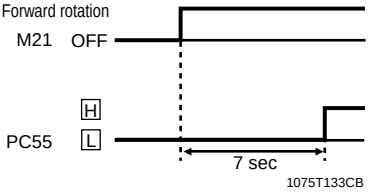
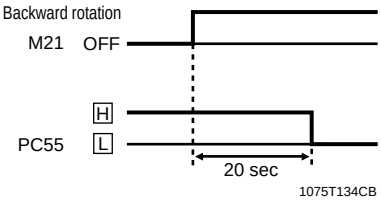
C00** (Drive system malfunctions)

*	Code	Description	Detection Timing
			The output from PC30 does not go Low within 10 seconds after it has gone HIGH following the energization of M14. 
	C0071	Main Hopper Toner Replenishing Motor M14 turning at abnormal timing	The PC30 output goes HIGH 2 seconds after M14 has been deenergized. 
	C0072	Sub Hopper Toner Replenishing Motor M15's failure to turn	When the current toner-to-carrier ratio is 2% lower than the "T/C control level set by AIDC Sensor control" and the Add Toner Indicator is not lit on the control panel, a toner replenishing sequence is carried out (M15 is turned); the toner- to-carrier ratio does not increase by 2% within 220 seconds.
	C0080	Synchronizing Motor M4 turning at abnormal timing	The Watchdog Pulse signal from the Synchronizing Motor Control Board remains unchanged for 5 seconds.

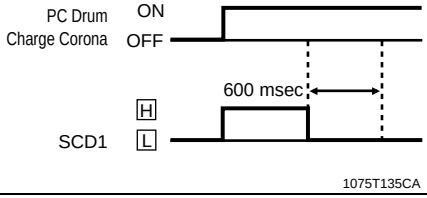
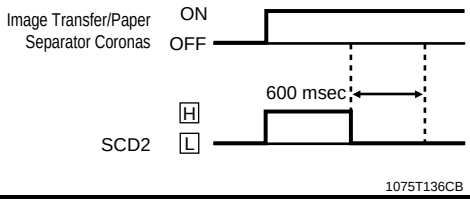
C01** (PC Drum Charge, Image Transfer/Paper Separator Corona cleaning malfunctions)

*	Code	Description	Detection Timing
	C0100	PC Drum Charge Wire Cleaning Motor M21's failure to turn	The output from the Drum Wire Cleaner Home Position Sensor PC54 does not go HIGH 7 seconds after M21 has started forward rotation (cleaning).  The output from PC54 does not go LOW 20 seconds after M21 has started backward rotation (home position return). 

C01** (PC Drum Charge, Image Transfer/Paper Separator Corona cleaning malfunctions)

*	Code	Description	Detection Timing
	C0110	Image Transfer/Paper Separator Charge Wire Cleaning Motor M22's failure to turn	The output from the Transfer Separator Wire Cleaner Home Position Sensor PC55 does not go HIGH 7 seconds after M22 has started forward rotation (cleaning).  The output from PC55 does not go LOW 20 seconds after M22 has started backward rotation (home position return). 

C02** (PC Drum Charge, Image Transfer/Paper Separator Coronas malfunctions)

*	Code	Description	Detection Timing
	C0200	PC Drum Charge Corona failure	The Short Circuit Detection signal (SCD1) does not go LOW for a continuous 600-msec. period while the PC Drum Charge Corona is ON. 
	C0210	Image Transfer/Paper Separator Corona failure	The Short Circuit Detection signal (SCD2) remains LOW for a continuous 600-msec. period while the Image Transfer/Paper Separator Coronas are ON. 

C03** (Control Board/Harness malfunctions)

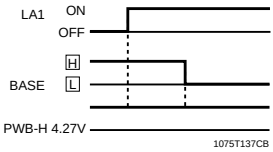
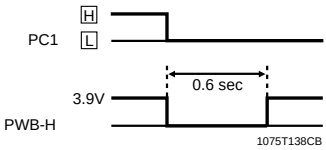
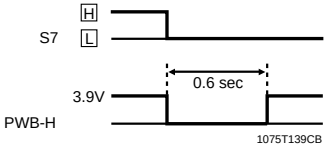
- The copier performs a self-diagnostic sequence to determine if the microprocessor outputs a signal to each of the IC ports on the Master Board PWB-A properly. It is intended to detect the following malfunctions (C03**). If the microprocessor fails to output any of these signals or if any of the electronic components on the board (driver IC, etc.) is faulty, the copier determines that there is a faulty condition existing and shows the corresponding malfunction code on the Touch Panel.
- C0371/C0372 (data for serial communication) is used to determine whether the output signal from the Master Board is transmitted to PWB-F and is sent back correctly. C0373 (data for serial communication) is used to determine whether the output signal from the Master Board is transmitted to PWB-G and is sent back correctly.
- C0374 (data for serial communication) is used to determine whether the output signal from the Master Board is transmitted to PWB-A of the C-302 and is sent back correctly.

*	Code	Description (Input or output signal fault)	Port on Master Board	Detection Timing
	C0300	The HIGH signal required to start the diagnostic sequence of each port is not input.	IC1A P85	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed.
	C0311	AVR PWM	IC1A P50	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed. • When a malfunction is detected.
	C0312	Upper Fusing Roller Main Heater Lamp (H1) REM	IC1A P51	
	C0314	AE adjustment (PWB-H) PWM	IC1A P60	
	C0315	Manual Feed Paper Pick-Up Solenoid (SL9) DOWN	IC5A APA6	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed.
	C0316	Manual Feed Paper Pick-Up Solenoid (SL9) UP	IC5A APA7	
	C0317	Image Erase Lamp (LA3) DATA	IC1A P64	
	C0318	Image Erase Lamp (LA3) LATCH	IC1A P65	
	C0319	Image Erase Lamp (LA3) CLK	IC1A P66	
	C031A	Image Erase Lamp (LA3) STROBE	IC1A P67	
	C031B	Main Hopper Toner Replenishing Motor (M14) REM	IC4A APA3	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed. • When a malfunction is detected.
	C031D	AVR REM	IC5A BPA0	
	C031E	SCAN signal	IC5A BPA2	
	C031F	Separator Finger Solenoid (SL6) REM	IC4A BPB2	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed.

*	Code	Description (Input or output signal fault)	Port on Master Board	Detection Timing
	C0321	Exit/Duplex Switching Solenoid (SL1) REM	IC4A BPB1	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed.
	C0322	Developing Bias REM	IC5A ϕ2	
	C0323	PC Drum Charge REM	IC5A ϕ3	
	C0326	Manual Feed Paper Take-Up Clutch (CL5) REM	IC5A APA2	
	C0329	Fusing Motor (M6) REM	IC5A APA5	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed. • When a malfunction is detected.
	C032C	Original Size (UN2) Area 1	IC4A APB6	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed.
	C032D	Original Size (UN2) Area 2	IC4A APB5	
	C032E	ENABLE signal	IC5A BPA1	
	C032F	Seal Bias REM	IC4A BPB7	
	C0330	Optical Section Cooling Fan (M17)/Suction Fan (M16)/Ventilation Fan (M19)/Toner Suction Fan (M20)/Power Supply Unit Cooling Fan (M29)	IC5A APA1	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed. • When a malfunction is detected.
	C0333	Main Erase Lamp (LA2) REM	IC4A BPB5	
	C0335	PC Drum Charge Wire Cleaning Motor (M21) REM	IC4A APB7	
	C0336	Lower Fusing Roller Heater (H3) REM	IC1A P43	
	C0337	Upper Fusing Roller Sub Heater (H2) REM	IC1A P46	
	C0338	Image Transfer/Image Separator REM	IC4A APC7	
	C0339	PC Drum/Image Transfer/Paper Separator ϕ0	IC4A OUT0	
	C033A	PC Drum/Image Transfer/Paper Separator ϕ1	IC4A OUT1	
	C033B	PC Drum/Image Transfer/Paper Separator ϕ2	IC4A OUT2	
	C033C	PC Drum/Image Transfer/Paper Separator ϕ3	IC4A OUT3	
	C033D	1st Drawer Paper Take-Up Clutch (CL1) REM	IC4A BPC4	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed.
	C033E	2nd Drawer Paper Take-Up Clutch (CL2) REM	IC4A BPC5	
	C033F	Cassette LED 1	IC4A BPC6	
	C0340	Cassette LED 2	IC4A BPC7	

*	Code	Description (Input or output signal fault)	Port on Master Board	Detection Timing
	C0341	Synchronizing Motor (M4) REM	IC5A BPA3	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed.
	C0342	Cleaning Web Winding Motor (M16) REM	IC4A APC6	
	C0343	Pre-Image Transfer Erase Lamp (LA4) REM	IC4A BPB4	
	C0344	Fusing Unit Ventilation Fan Motor (M8) REM	IC4A BPB0	
	C0345	Pre-Cleaning Erase Lamp (LA5) REM	IC4A BPB3	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed.
	C0346	Paper Take-Up Motor (M1) REM	IC5A APA0	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed. • When a malfunction is detected.
	C0347	Duplex Unit Paper Take-Up Clutch (CL6) REM	IC5A APA3	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed.
	C0348	PC Drum Drive Motor (M5) REM	IC5A APA4	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed. • When a malfunction is detected.
	C0349	Paper Separator Corona Output Switching	IC5A OUT0	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed.
	C034A	Paper Separator Corona REM	IC5A OUT1	
	C034B	Image Transfer Corona REM	IC5A OUT2	
	C034C	40kHz PWM	IC1A P56	
	C034D	Sub Hopper Toner Replenishing Motor (M15) REM	IC4A APC5	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed. • When a malfunction is detected.
*	C0351	Output Data for Serial Communication (PWB-F)	IC3A SI1/SO1	• When the "Board Check" of "I/O Check" in the Tech. Rep. Mode is executed. • When the Power Switch is turned ON.
*	C0352	Output Data for Serial Communication (PWB-F)	IC3A SI2/SO2	
*	C0353	Output Data for Serial Communication (AD-5)	IC3A SI3/SO3	
*	C0354	Output Data for Serial Communication (C-302)	IC3A SI4/SO4	
*	C0371	Input Data for Serial Communication (PWB-F)	IC3A SI1/SO1	
*	C0372	Input Data for Serial Communication (PWB-F)	IC3A SI2/SO2	
*	C0373	Input Data for Serial Communication (AD-5)	IC3A SI3/SO3	
*	C0374	Input Data for Serial Communication (C-302)	IC3A SI4/SO4	

C04** (Exposure Lamp malfunctions)

*	Code	Description	Detection Timing
	C0400	Exposure Lamp LA1's failure to turn ON	The output from the AE Sensor Board PWB-H has not become 4.27V or less from when LA1 turns ON and the Scanner starts a scan motion until when the Image Leading Edge signal (BASE) turns ON (goes LOW). 
	C0410	Exposure Lamp LA1 turning ON at abnormal timing	The output from PWB-H remains 3.9V or less for a continuous 0.6-second period while the output from the Scanner Reference Position Sensor PC1 remains LOW.  The output from PWB-H remains 3.9V or less for a continuous 0.6-second period while the output from the Size Reset Switch S7 remains LOW (i.e. while the Original Cover remains closed) and PC1 remains HIGH. 

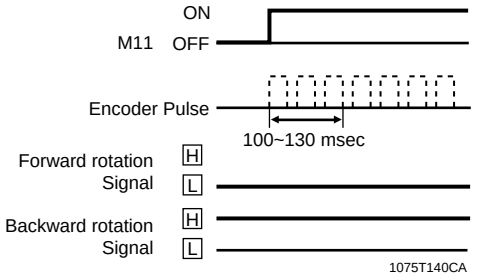
C05** (Fusing Unit malfunctions)

*	Code	Description	Detection Timing
	C0500	Warming-up failure (Upper Fusing Heater failure)	• After the Power Switch S1 has been turned ON or the corresponding door opened and closed after troubleshooting, the surface temperature of the Upper Fusing Roller does not reach: * 60°C within 130-second. * 120°C within 150-second after it has reached 60°C. * 170°C within 140-second after it has reached 120°C. * 190°C within 180-second after it has reached 170°C. * 190°C within 120-second after the copier has left the Energy Saver mode.
	C0510	Abnormally low fusing temperature (Upper Fusing Heater failure)	The surface temperature of the Upper Fusing Roller remains 150°C or less for a continuous 5-second period after the copier has warmed up.
	C0511	Abnormally low fusing temperature (Lower Fusing Heater failure)	The surface temperature of the Lower Fusing Roller remains 140°C or less for a continuous 15 minutes period after the copier has warmed up.

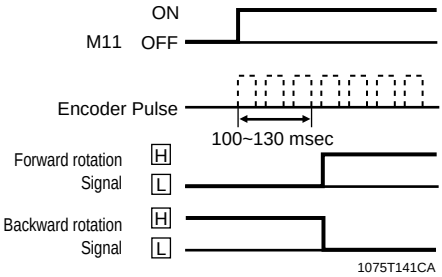
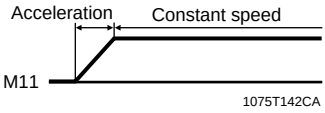
C05** (Fusing Unit malfunctions)

*	Code	Description	Detection Timing
	C0520	Abnormally high fusing temperature (Upper Fusing Heater Lamp turning ON at abnormal timing)	The surface temperature of the Upper Fusing Roller remains 210°C or more for a continuous 5-second period after the copier has warmed up.
	C0521	Abnormally high fusing temperature (Lower Fusing Heater Lamp turning ON at abnormal timing)	The surface temperature of the Lower Fusing Roller remains 220°C or more for a continuous 5-second period after the copier has warmed up.
	C0522	Upper Fusing Roller Thermistor TH1 malfunction	The voltage from TH1 remains 0.16V or less for a continuous 1-second period after the copier has warmed up.
	C0523	Lower Fusing Roller Thermistor TH2 malfunction	The voltage from TH2 remains 0.16V or less for a continuous 1-second period after the copier has warmed up.
	C0540	Fusing Roller Thermistor loading malfunction	The Connector Setting signal remains HIGH for a continuous 4-second period.

C06** (Optical Section malfunctions)

*	Code	Description	Detection Timing
	C0600	Scanner Motor M11 malfunction	With no encoder pulses input to the SCP Board PWB-J for 100 to 130 msec. while M11 is turning, the Forward/Backward Rotation signal from PWB-J does not go from LOW to HIGH, or vice versa, when an attempt is made to turn M11 backward. 

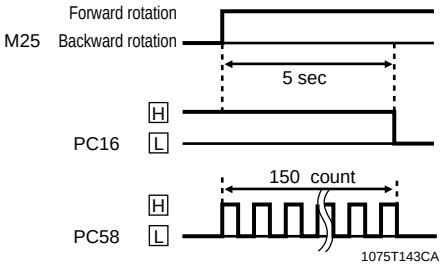
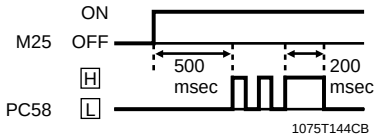
C06** (Optical Section malfunctions)

*	Code	Description	Detection Timing
	C0601	SCP Board PWB-J malfunction	With no encoder pulses input to PWB-J for 100 to 130 msec. while M11 is turning, the Forward/Backward Rotation signal from PWB-J goes from LOW to HIGH, or vice versa, when an attempt is made to turn M11 backward. 
	C0610	Lens X-direction motion failure	The output from the Lens X Direction Reference Position Sensor PC2 does not go from HIGH to LOW or from LOW to HIGH a given period of time after the Lens X-Direction Drive Motor M12 has started.
	C0611	Lens Y-direction motion failure	The output from the Lens Y Direction Reference Position Sensor PC3 does not go from HIGH to LOW or from LOW to HIGH a given period of time after the Lens Y-Direction Drive Motor M13 has started.
	C0650	Scanner Reference Position Sensor PC1 malfunction	<At the start of the Scanner's scan motion> PC1 is not unblocked (H) after a given period of time has elapsed. <At the end of the Scanner's return motion> PC1 is not blocked (L) after a given period of time has elapsed.
	C0660	Scanner load failure	The Scan Motor M11 does not switch from acceleration to constant speed from when the SHOME signal goes LOW until when a LOW TRON signal is detected. 

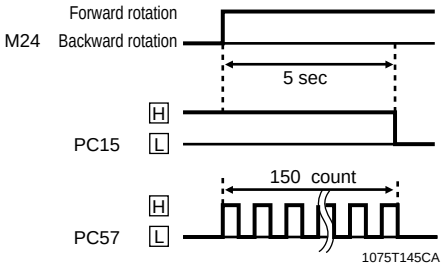
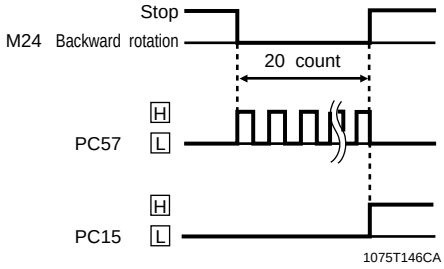
C06** (Optical Section malfunctions)

*	Code	Description	Detection Timing
	C06F0	SHOME signal failure (SHOME does not go LOW)	<During prescan> • When the Scanner is at other than the home position, the SHOME signal does not go LOW 5 seconds after the Power Switch has been turned ON. • The SHOME signal does not go LOW 5 seconds after the SCEND signal has gone from LOW to HIGH. <During a copy cycle> • When the Scanner is at other than the home position, the SHOME signal does not go LOW 7 seconds after the SCAN signal has gone LOW. • The SHOME signal does not go LOW 5 seconds after the SCEND signal has gone from LOW to HIGH.
	C06F1	SHOME signal failure (SHOME does not go HIGH)	The SHOME signal does not go HIGH 7 seconds after it has gone LOW.
	C06F2	BASE signal failure (BASE does not go LOW)	The BASE signal does not go LOW 5 seconds after the SHOME signal has gone HIGH.
	C06F3	BASE signal failure (BASE does not go HIGH)	<During prescan> The BASE signal does not go HIGH 5 second after the TRON signal has gone LOW.
	C06F4	TRON signal failure (TRON does not go LOW)	<During prescan> The TRON signal does not go LOW 5 seconds after the BASE signal has gone LOW. <During a copy cycle> The TRON signal does not go LOW 5 seconds after the SHOME signal has gone HIGH.
	C06F5	TRON signal failure (TRON does not go HIGH)	<During prescan> The TRON signal does not go HIGH 5 second after the BASE signal has gone HIGH.
	C06F6	SCEND signal failure (SCEND does not go LOW)	<During prescan> The SCEND signal does not go LOW 5 second after the TRON signal has gone HIGH. <During a copy cycle> The SCEND signal does not go LOW 5 seconds after the SHOME signal has gone HIGH.
	C06F7	SCEND signal failure (SCEND does not go HIGH)	The SCEND signal does not go HIGH 5 second after it has gone LOW.

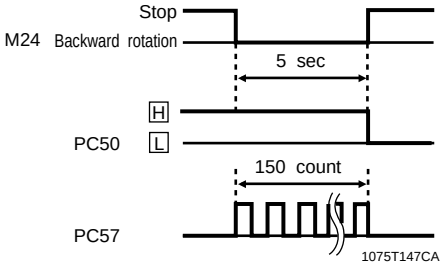
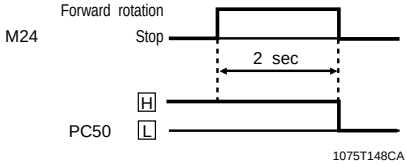
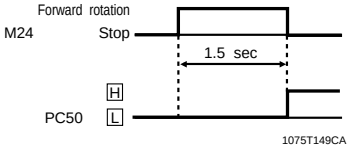
C09** (Paper Take-Up Section malfunctions)

*	Code	Description	Detection Timing
*	C0900	3rd Drawer Lift-Up failure	• The 3rd Drawer Lift-Up Sensor PC16 is not blocked (L) 5 seconds after the 3rd Drawer Paper Lift-Up Motor M25 has started rotating forward. • The 3rd Drawer Lift-Up Motor Pulse Sensor PC58 detects 75 pulses after M25 had started rotating forward. 
*	C0904	3rd Drawer Lift-Up Motor M25's failure to turn	• The 3rd Drawer Lift-Up Motor Pulse Sensor PC58 detects no pulses 500 msec. after M25 had been energized. • The 3rd Drawer Lift-Up Motor Pulse Sensor PC58 detects no pulses for 200 msec. while M25 was being energized. 

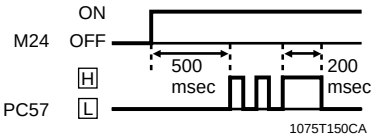
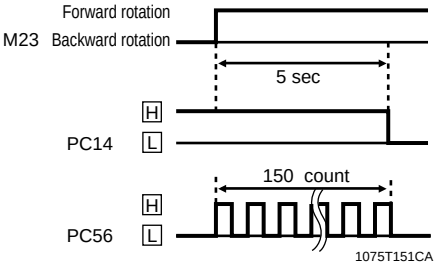
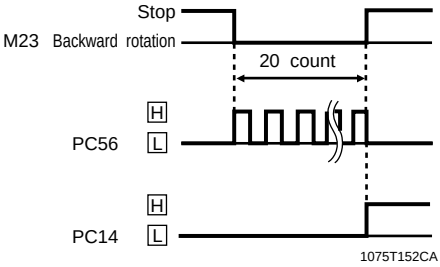
C09** (Paper Take-Up Section malfunctions)

*	Code	Description	Detection Timing
*	C0910	2nd Drawer Lift-Up failure	• The 2nd Drawer Lift-Up Sensor PC15 is not blocked (L) 5 seconds after the 2nd Drawer Lift-Up Motor M24 has started rotating forward. • The 2nd Drawer Lift-Up Motor Pulse Sensor PC57 detects 75 pulses after M24 had started rotating forward. 
*	C0911 (Inch Areas)	2nd Drawer Lower-Down failure	The 2nd Drawer Lift-Up Sensor PC15 is not unblocked (H) though the 2nd Drawer Lift-Up Motor Pulse Sensor PC57 detects 10 pulses after M24 had started rotating backward. 

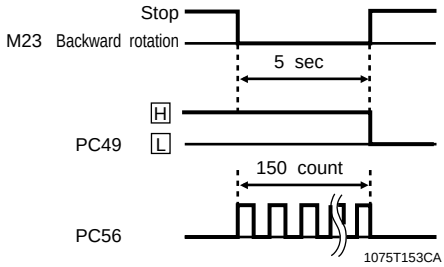
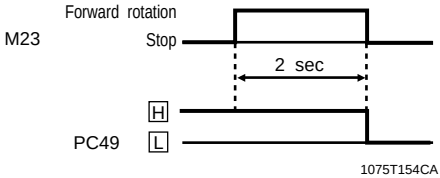
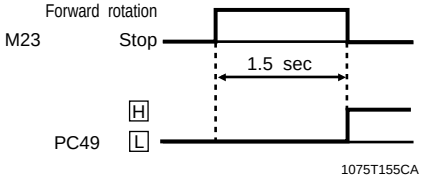
C09** (Paper Take-Up Section malfunctions)

*	Code	Description	Detection Timing
*	C0912 (Inch Areas)	2nd Drawer Lower-Down failure 2nd Drawer Lock failure	<Lower-down failure> • The 2nd Drawer Lower Limit Position Sensor PC50 is not blocked (L) 5 seconds after the 2nd Drawer Lift-Up Motor M24 has started rotating backward. • The 2nd Drawer Lift-Up Motor Pulse Sensor PC57 detects 75 pulses after M24 had started rotating backward.  <Lock failure> • The 2nd Drawer Lower Limit Position Sensor PC50 is not blocked (L) 2 seconds after the 2nd Drawer Lift-Up Motor M24 has started rotating forward. 
*	C0913 (Inch Areas)	2nd Drawer Lock failure	With the 2nd Drawer Lower Limit Position Sensor PC50 blocked (L), PC50 is not unblocked (H) 1.5 seconds after the 2nd Drawer Lift-Up Motor M24 has started rotating forward. 

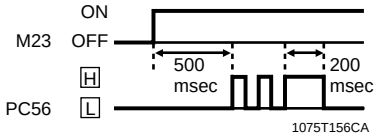
C09** (Paper Take-Up Section malfunctions)

*	Code	Description	Detection Timing
*	C0914	2nd Drawer Lift-Up Motor M24's failure to turn	• The 2nd Drawer Lift-Up Motor Pulse Sensor PC57 detects no pulses 500 msec. after M24 had been energized. • The 2nd Drawer Lift-Up Motor Pulse Sensor PC57 detects no pulses for 200 msec. while M24 was being energized. 
*	C0916 (Inch Areas)	2nd Drawer lock release failure	The 2nd Drawer is not pushed out 10 seconds after the 2nd Drawer Lowered Position Sensor PC50 has been blocked (L) during lowering motion.
*	C0920	1st Drawer Lift-Up failure	• The 1st Drawer Lift-Up Sensor PC14 is not blocked (L) 5 seconds after the 1st Drawer Lift-Up Motor M23 has started rotating forward. • The 1st Drawer Lift-Up Motor Pulse Sensor PC56 detects 75 pulses after M23 had started rotating forward. 
*	C0921 (Inch Areas)	1st Drawer Lower-Down failure	The 1st Drawer Lift-Up Sensor PC14 is not unblocked (H) though the 1st Drawer Lift-Up Motor Pulse Sensor PC56 detects 10 pulses after M23 had started rotating backward. 

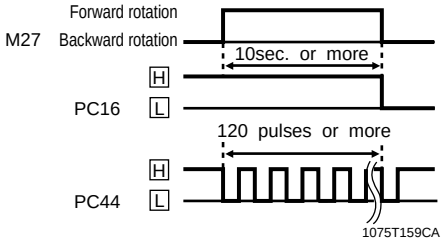
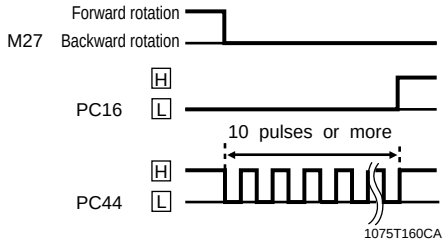
C09** (Paper Take-Up Section malfunctions)

*	Code	Description	Detection Timing
*	C0922 (Inch Areas)	1st Drawer Lower-Down failure 1st Drawer Lock failure	<Lower-down failure> • The 1st Drawer Lower Limit Position Sensor PC49 is not blocked (L) 5 seconds after the 1st Drawer Lift-Up Motor M23 has started rotating backward. • The 1st Drawer Lift-Up Motor Pulse Sensor PC56 detects 75 pulses after M23 had started rotating backward.  <Lock failure> • The 1st Drawer Lower Limit Position Sensor PC49 is not blocked (L) 2 seconds after the 1st Drawer Lift-Up Motor M23 has started rotating forward. 
*	C0923 (Inch Areas)	1st Drawer lock failure	With the 1st Drawer Lower Limit Position Sensor PC49 blocked (L), PC49 is not unblocked (H) 1.5 seconds after the 1st Drawer Lift-Up Motor M23 has started rotating forward. 

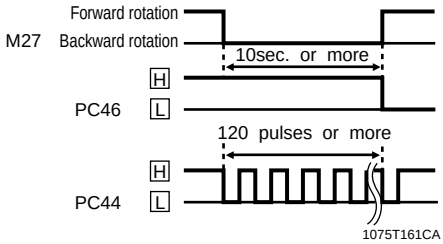
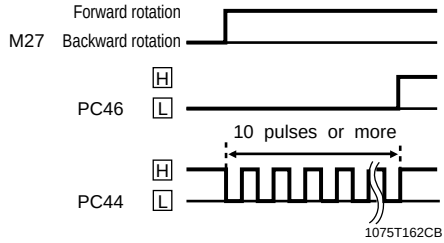
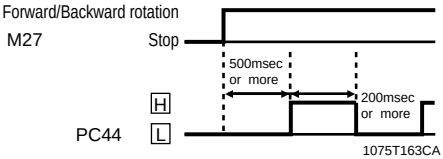
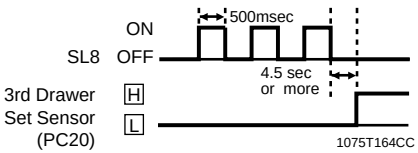
C09** (Paper Take-Up Section malfunctions)

*	Code	Description	Detection Timing
*	C0924	1st Drawer Lift-Up Motor M23's failure to turn	• The 1st Drawer Lift-Up Motor Pulse Sensor PC56 detects no pulses 500 msec. after M23 had been energized. • The 1st Drawer Lift-Up Motor Pulse Sensor PC56 detects no pulses for 200 msec. while M23 was being energized. 
*	C0926 (Inch Areas)	1st Drawer lock release failure	The 1st Drawer is not pushed out 10 seconds after the 1st Drawer Lower Limit Position Sensor PC49 has been blocked (L) during lowering motion.

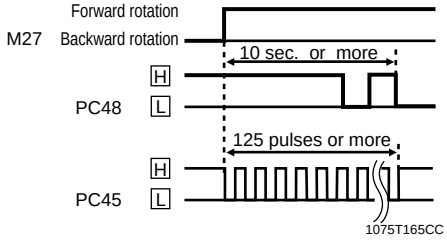
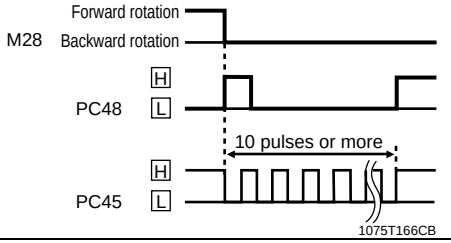
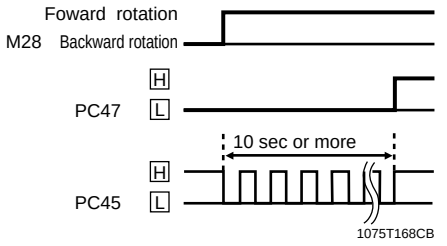
C09** (Paper Take-Up Section malfunctions)

*	Code	Description	Detection Timing
*	C0990	Main Tray upward motion failure	The 3rd Drawer Lift-Up Sensor PC16 is not blocked (L) 10 seconds after the 3rd Drawer Elevator Motor M27 has started rotating forward (upward motion), or the 3rd Drawer Elevator Motor Pulse Sensor PC44 detects 120 pulses after M27 had started rotating forward (upward motion). 
*	C0991	Main Tray downward motion failure	The 3rd Drawer Lift-Up Sensor PC16 is not unblocked (H) though the 3rd Drawer Elevator Motor Pulse Sensor PC44 detects 10 pulses after M27 has started rotating backward (downward motion). 

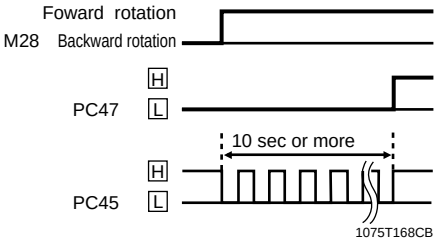
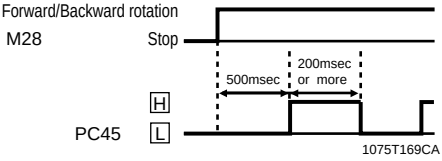
C09** (Paper Take-Up Section malfunctions)

*	Code	Description	Detection Timing
*	C0992	Main Tray downward motion failure	3rd Drawer Tray Lower Position Sensor PC46 is not blocked (L) 10 seconds after M27 has started rotating backward (downward motion), or PC44 detects 120 pulses after M27 has started rotating backward (downward motion). 
*	C0993	Main Tray upward motion failure	PC46 is not unblocked (H) though PC44 detects 10 pulses after M27 has started rotating forward (upward motion). 
*	C0994	3rd Drawer Elevator Motor M27's failure to turn	The 3rd Drawer Elevator Motor Pulse Sensor PC44 detects no pulses when 200 msec. (500 msec. for the first pulse in consideration of the start of M27) has elapsed during the forward/backward rotation (upward/downward motion) of M27. 
*	C0996	3rd Drawer lock release failure	The 3rd Drawer Set Sensor PC20 does not go HIGH though the 3rd Drawer Lock Solenoid SL8 has been energized three times for 500 msec.. 

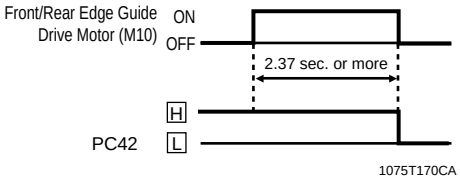
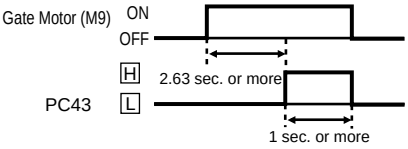
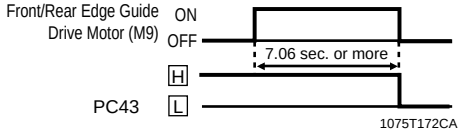
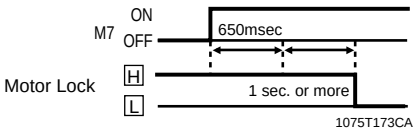
C09** (Paper Take-Up Section malfunctions)

*	Code	Description	Detection Timing
*	C0998	Shifter transfer failure	The 3rd Drawer Shifter Return Position Sensor PC48 does not detect the second trailing (H→L) edge 10 seconds after the 3rd Drawer Shift Motor M28 has started forward rotation (right shift), or the 3rd Drawer Shift Motor Pulse Sensor PC45 detects 125 pulses after M28 has started forward rotation (right shift). 
*	C0999	Shifter return failure	PC48 cannot detect a leading (L→H) edge though PC45 has detected 10 pulses after M28 has started backward rotation (left shift). 
*	C099A	Shifter return failure	The 3rd Drawer Shifter Home Position Sensor PC47 is not blocked (L) 10 seconds after M28 has started backward rotation (left shift), or the 3rd Drawer Shift Motor Pulse Sensor PC45 detects 125 pulses after M28 has started backward rotation (left shift). 

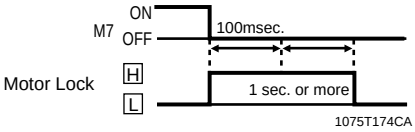
C09** (Paper Take-Up Section malfunctions)

*	Code	Description	Detection Timing
*	C099b	Shifter transfer failure	PC47 cannot detect a leading (L→H) edge though PC45 has detected 10 pulses after M28 has started forward rotation (right shift). 
*	C099c	3rd Drawer Shift Motor's failure to turn	The 3rd Drawer Shift Motor Pulse Sensor PC45 detects no pulses when 200 msec. (500 msec. for the first pulse in consideration of the start of M28) has elapsed during the forward/backward rotation (right/left shift) of M28. 

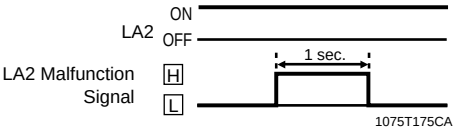
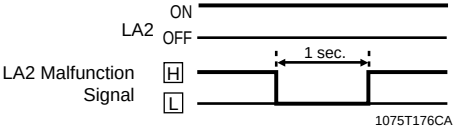
C0d** (Duplex Unit malfunctions)

*	Code	Description	Detection Timing
*	C0d00	Duplex Unit Front/Rear Edge Guide Plates home position detection failure	This position is only detected during initial operation. (When the Power Switch is turned ON, the Duplex Unit is loaded, Duplex Unit take- up ends, or the Duplex Unit is unloaded). This failure occurs when the Front/Rear Edge Guide Plate Home Position Sensor PC42 is not blocked (L) within 2.37 seconds after the initial operation is started. 
*	C0d20	Duplex Unit Trailing Gate home position detection failure	This position is only detected during initial operation. (When the Power Switch is turned ON, the Duplex Unit is loaded, or the Duplex Unit is unloaded, the Gate moves after completion of the initial operation.) 1. When the Duplex Gate Home Position Sensor PC43 is being blocked (L) at the start of the initial operation, this failure occurs if: (1) PC43 does not go HIGH within 2.63 seconds; or (2) PC43 does not go LOW within 1 second after it has gone HIGH.  2. When the Duplex Gate Home Position Sensor PC43 is being unblocked (H) at the start of the initial operation, this failure occurs if: (1) PC43 does not go LOW within 7.06 seconds. 
*	C0d50	Duplex Unit Drive Motor M7's failure to turn	The Motor Lock signal (L) is not detected within 1 second after 650 msec. has elapsed from the energization of M7. (Detected only at the start of the Motor.) 

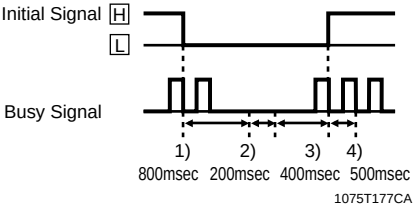
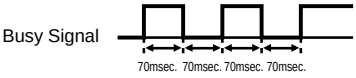
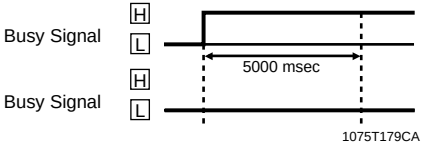
C0d** (Duplex Unit malfunctions)

*	Code	Description	Detection Timing
*	C0d51	Duplex Unit Drive Motor M7 turning at abnormal timing	The Motor Lock signal (L) is detected for a continuous 1-second period 100 msec. after M7 has been deenergized. (Detected any time during the stop of the Motor.) 

C0E** (Erase Lamp malfunctions)

*	Code	Description	Detection Timing
	C0E00	Main Erase Lamp LA2's failure to turn ON	The LA2 Malfunction signal remains HIGH for a continuous 1-second period while LA2 remains ON. 
	C0E01	Main Erase Lamp LA2 turning ON at abnormal timing	The LA2 Malfunction signal remains LOW for a continuous 1-second period while LA2 remains OFF. 
	C0E20	Image Erase Lamp LA3 connection failure	The Loading signal remains HIGH for a continuous 10-second period after the Power Switch has been turned ON.

C0F** (Sensor malfunctions)

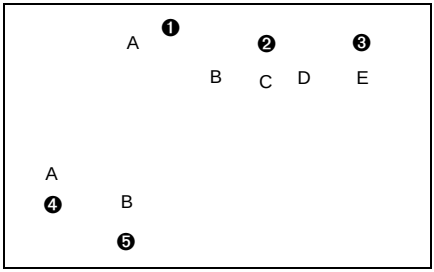
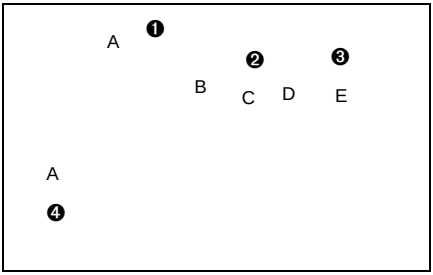
*	Code	Description	Detection Timing
*	C0F02	Original Size Detecting Board UN2 malfunction	<In F7 mode> 1) The Busy signal does not go LOW within approx. 800 msec. after the Initial signal has gone LOW, or undefined data is input to the Master CPU. 2) If 1 is checked okay, the Busy signal goes HIGH within approx. 200 msec. 3) If both 1 and 2 are checked okay, the Busy signal does not go HIGH within approx. 400 msec. 4) If 1, 2 and 3 are checked okay, undefined data is input to the Master CPU within approx. 500 msec.  1075T177CA <Under normal conditions> 1) The Busy signal remains HIGH or LOW for approx. 3,000 msec or more. 2) Undefined data is input to the Master CPU.  1075T178CA <When the Power Switch S1 is turned ON> 1) The Busy signal remains HIGH or LOW for approx. 5,000 msec or more. 2) Undefined data is input to the Master CPU.  1075T179CA

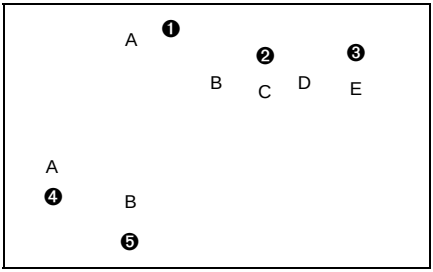
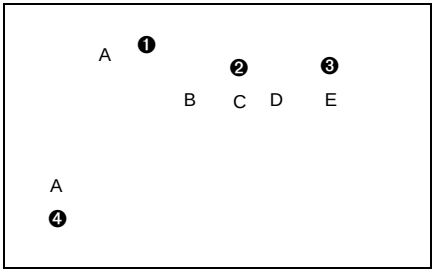
C0F** (Sensor malfunctions)

*	Code	Description	Detection Timing
	C0F10	AE Sensor Board PWB-H malfunction	<In normal conditions> • The output from PWB-H remains approx. 0.18V or less for a continuous 2-second period when LA1 is OFF, PC1 output is LOW, or S7 output is LOW (i.e. the Original Cover is closed). <In F5 mode> • The output from PWB-H is less than 1.8V when the gain of the AE Sensor is 100%. • The output from PWB-H is 1.8V or more when the gain of the AE Sensor is 0%. • The output from PWB-H is outside the target range (1.8 ±0.05V) when the gain of the AE Sensor is 50%. <When the optimum LA1 voltage is changed after the intensity of LA1 light has been corrected> • The output from PWB-H at the AE Sensor gain of 100% is smaller than that for halftones stored in the F5 mode. • The output from PWB-H at the AE Sensor gain of 0% is smaller than that for halftones stored in the F5 mode. • The output from PWB-H at the AE Sensor gain of 50% is outside the range of (output for halftones stored in the F5 mode) ±0.05V.
*	C0F20	AIDC Sensor UN9 variation correction failure	• The UN9 output is 0.9V or more when all signals from the 4-bit analog switch are turned LOW (i.e. when a load resistance is maximum). • The UN9 output is less than 1.1V when all signals from the 4-bit analog switch are turned HIGH (i.e. when a load resistance is minimum).
*	C0F21	AIDC Sensor UN9 contamination correction failure	• The UN9 output does not exceed or fall from 1V when the intensity of the Sensor LED is minimum (after the variation correction of UN9) • The UN9 output is 2V or more when the intensity of the LED is optimum.

C0F** (Sensor malfunctions)

*	Code	Description	Detection Timing
*	C0F23	AIDC Sensor UN9 exposure correction failure	The AIDC Sensor output voltage does not become 1.6 ±0.2V even after the eighth correction sequence.
	C0F30	ATDC Sensor UN8 malfunction	The UN8 output remains approx. 0.18V or less or approx. 4.52V or more for a continuous 3-second period while M1 remains energized.
	C0F31	ATDC Sensor UN8 malfunction	• The value shown for "Set" of "ATDC Level" of "Level History" is greatly different from the value set in the F8 mode. • In the F8 mode, the output of UN8 does not fall within the range 4.45V to 11.05V.
	C0F66	Manually fed paper width reference position failure	<When Fd-0 or Fd-2 is executed> • The maximum set reference voltage becomes 2.35V or less. <When Fd-1 or Fd-3 is executed> • The minimum set reference voltage becomes 2.35V or more.
*	C0F79	3rd Drawer Paper Empty Sensor PC24 malfunction	PC24 is not blocked (L) when the Main Tray has completed lift-up.
		Main Tray Paper Empty Detecting Board PWB-E malfunction	PWB-E does not detect HIGH when the Main Tray has completed lowering due to a paper empty condition.
			PWB-E does not detect LOW after completion of paper transfer from the Shift Tray to the Main Tray.
		Shift Tray Paper Empty Sensor PC60 malfunction	PC60 is not unblocked (H) after completion of paper transfer from the Shift Tray to the Main Tray.

	Code	Description	Detection Timing and Sensor Layout
Original Size Detecting Board *	C0FE1	Original Size Detecting Sensor ❶ failure	<Detection Timing> After having read the output data from UN3 to UN7, UN2 determines that there is a failure. <Sensor Layout> Metric Areas • ❶: UN5, ❷: UN4, ❸: UN3 (option), ❹: UN6, ❺: UN7 (option) * UN3 and UN7 are standard for Hong Kong area. • A to E: Sensor locations  Inch Areas • ❶: UN5 (option), ❷: UN4, ❸: UN3 (option), ❹: UN6 
	C0FE2	Original Size Detecting Sensor ❷ failure	
	C0FE3	Original Size Detecting Sensors ❶ and ❷ failure	
	C0FE4	Original Size Detecting Sensor ❸ failure	
	C0FE5	Original Size Detecting Sensors ❶ and ❸ failure	
	C0FE6	Original Size Detecting Sensors ❷ and ❸ failure	
	C0FE7	Original Size Detecting Sensors ❶, ❷, and ❸ failure	
	C0FE8	Original Size Detecting Sensor ❹ failure	
	C0FE9	Original Size Detecting Sensors ❶ and ❹ failure	
	C0FEA	Original Size Detecting Sensors ❷ and ❹ failure	
	C0FEB	Original Size Detecting Sensors ❶, ❷, and ❹ failure	
	C0FEC	Original Size Detecting Sensors ❸and ❹ failure	
	C0FED	Original Size Detecting Sensors ❶, ❸, and ❹ failure	
	C0FEE	Original Size Detecting Sensors ❷, ❸, and ❹ failure	
	C0FEF	Original Size Detecting Sensors ❶, ❷, ❸, and ❹ failure	

*	Code	Description	Sensor Layout
Original Size Detecting Board *	C0FF0	Original Size Detecting Sensor ❺ failure	Metric Areas • ❶: UN5, ❷: UN4, ❸: UN3 (option), ❹: UN6, ❺: UN7 (option) * UN3 and UN7 are standard for Hong Kong area. • A to E: Sensor locations  Inch Areas • ❶: UN5 (option), ❷: UN4, ❸: UN3 (option), ❹: UN6 
	C0FF1	Original Size Detecting Sensors ❶ and ❺ failure	
	C0FF2	Original Size Detecting Sensors ❷ and ❺ failure	
	C0FF3	Original Size Detecting Sensors ❶, ❷, and ❺ failure	
	C0FF4	Original Size Detecting Sensors ❸ and ❺ failure	
	C0FF5	Original Size Detecting Sensors ❶, ❸, and ❺ failure	
	C0FF6	Original Size Detecting Sensors ❷, ❸, and ❺ failure	
	C0FF7	Original Size Detecting Sensors ❶, ❷, ❸, and ❺ failure	
	C0FF8	Original Size Detecting Sensors ❹ and ❺ failure	
	C0FF9	Original Size Detecting Sensors ❶, ❹, and ❺ failure	
	C0FFA	Original Size Detecting Sensors ❷, ❹, and ❺ failure	
	C0FFB	Original Size Detecting Sensors ❶, ❷, ❹, and ❺ failure	
	C0FFC	Original Size Detecting Sensors ❸, ❹, and ❺ failure	
	C0FFD	Original Size Detecting Sensors ❶, ❸, ❹, and ❺ failure	
	C0FFE	Original Size Detecting Sensors ❷, ❸, ❹, and ❺ failure	
	C0FFF	Original Size Detecting Sensors ❶, ❷, ❸, ❹, and ❺ failure (Metric Areas)	

C09C* (C-302 malfunctions)

*	Code	Description	Detection Timing
*	C09C0	Elevator ascent failure	• The Paper Raised Position Sensor LEV SEN is not blocked (L) 125 seconds after the Elevator Motor (H MOT) has been energized. • LEV SEN is not blocked (L) 3 seconds after H MOT has been energized and the Paper Empty Sensor EMP SEN unblocked (H).
*	C09C1	Elevator descent failure	• The Paper Lowered Position Sensor LOW SEN is not blocked (L) 12 seconds after H MOT has been energized.

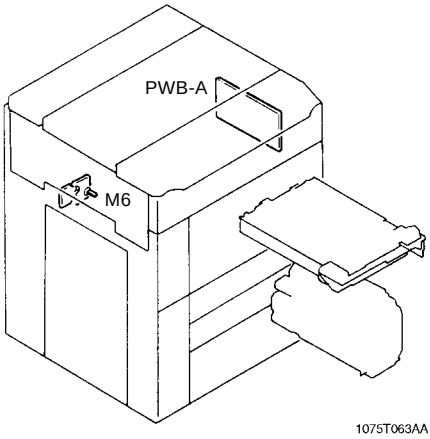
C0b** (S-206/ST-207 malfunctions)

*	Code	Description	Classification
	C0b00	Transport drive malfunction	S-206/ST-207
	C0b01		
*	C0b10	Paper Clamp Unit motion failure	ST-207
*	C0b11		
*	C0b12		
*	C0b13		
*	C0b30	Paper Aligning Mechanism drive failure	ST-207
	C0b31		
	C0b50	Stapling failure	ST-207
*	C0b51		
	C0b52		
*	C0b60	Bin motion failure	S-206/ST-207
*	C0b61		
*	C0b62		
*	C0b63		
*	C0b64		
*	C0b65		
*	C0b70	Hole punching failure	ST-207
*	C0b71		

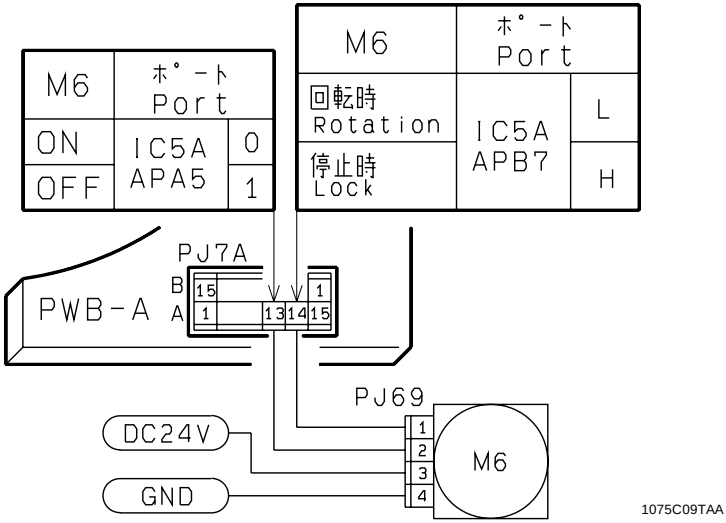
* For the detection timing, see the ST-207/S-206 Service Manual.

2. Troubleshooting Procedures

2-1. C0000: Fusing Motor M6's Failure to Turn
C0001: Fusing Motor M6 Turning at Abnormal Timing

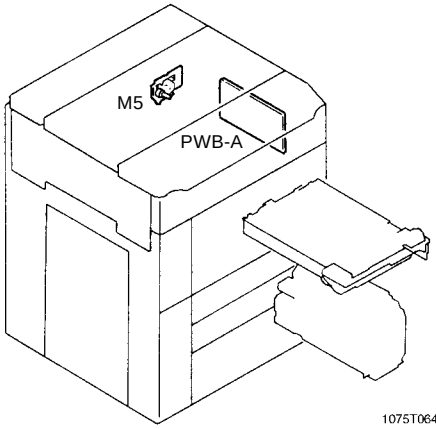


Symbol	Name
M6	Fusing Motor
PWB-A	Master Board

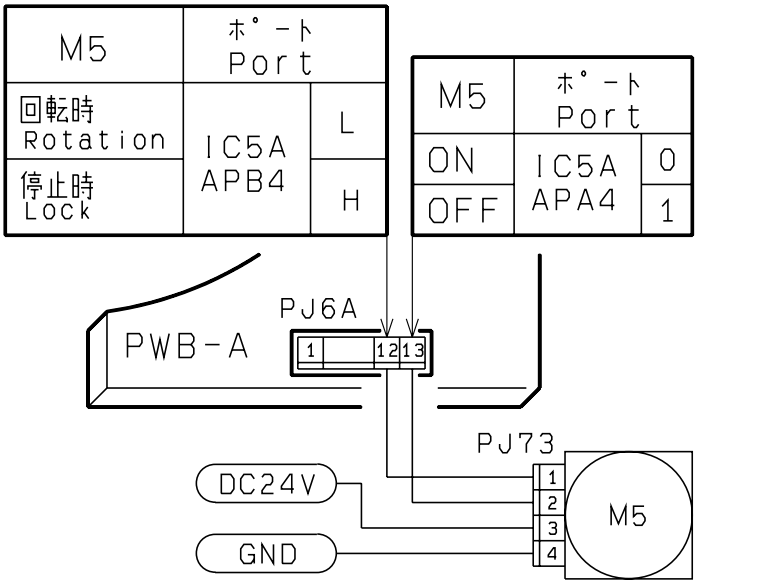


Step	Check Item	Result	Action
1	Is the malfunction code C0000?	NO	• To Step 5.
2	Check the M6 REM signal as described below: 1) Reset the malfunction. 2) Select "IC Port Data Check".	___	_____
	3) By changing the data of APA5 on PWB-A (IC5A) from "1" to "0", does M6 rotate? (See the 2/8 screen on T-7.)	NO	• To Step 4.
3	Check the M6 Lock signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APB7 on PWB-A (IC5A) "L"? (See the 2/8 screen on T-7.)	YES	• Change PWB-A.
		NO	• Check the gears, belt, etc. for overload. • Change M6.
4	By making a "Board Check" in "I/O Check", is the malfunction code displayed?	YES	• Change PWB-A.
		NO	• Check the gears, belt, etc. for overload. • Change M6.
5	Check the M6 REM signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APA5 on PWB-A (IC5A) "1"? (See the 2/8 screen on T-7.)	NO	• Change PWB-A.
6	Check the M6 Lock signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APB7 on PWB-A (IC5A) "H"? (See the 2/8 screen on T-7.)	YES	• Change PWB-A.
		NO	• Change M6.

2-2. C0010: PC Drum Drive Motor M5's Failure to Turn
C0011: PC Drum Drive Motor M5 Turning at Abnormal Timing



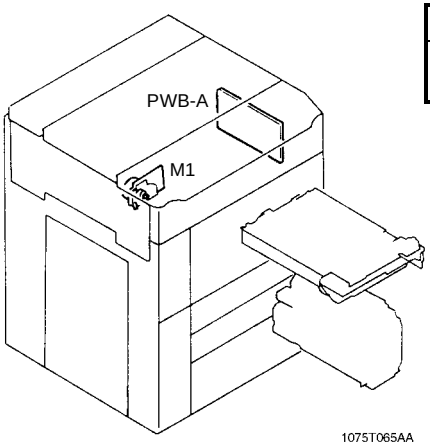
Symbol	Name
M5	PC Drum Drive Motor
PWB-A	Master Board

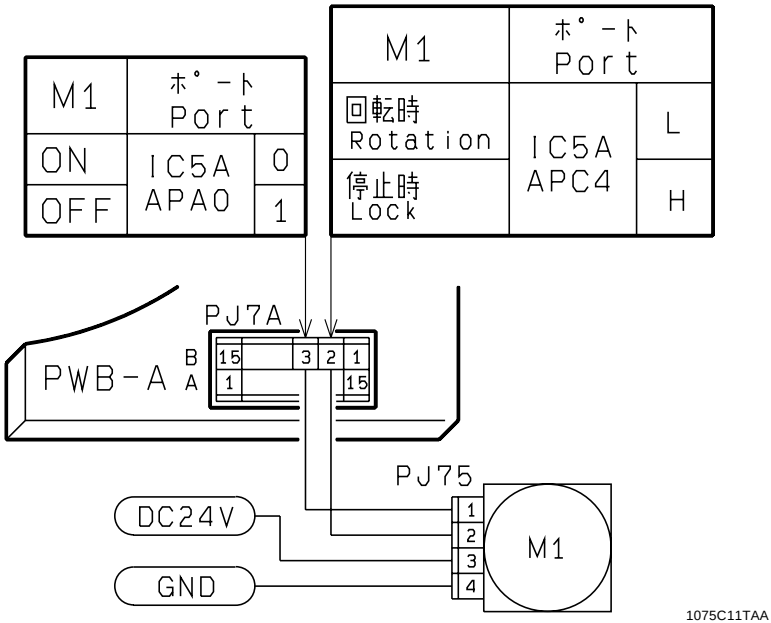


Step	Check Item	Result	Action
1	Is the malfunction code C0010?	NO	• To Step 5.
2	Check the M5 REM signal as described below: 1) Reset the malfunction. 2) Select "IC Port Data Check".	___	_____
	3) By changing the data of APA4 on PWB-A (IC5A) from "1" to "0", does M5 rotate? (See the 2/8 screen on T-7.)	NO	• To Step 4.
3	Check the M5 Lock signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APB4 on PWB-A (IC5A) "L"? (See the 2/8 screen on T-7.)	YES	• Change PWB-A.
		NO	• Check the gears, belt, etc. for overload. • Change M5.
4	By making a "Board Check" in "I/O Check", is the malfunction code displayed?	YES	• Change PWB-A.
		NO	• Check the gears, belt, etc. for overload. • Change M5.
5	Check the M5 REM signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APA4 on PWB-A (IC5A) "1"? (See the 2/8 screen on T-7.)	NO	• Change PWB-A.
6	Check the M5 Lock signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APB4 on PWB-A (IC5A) "H"? (See the 2/8 screen on T-7.)	YES	• Change PWB-A.
		NO	• Change M5.

2-3. C0020: Paper Take-Up Motor M1's Failure to Turn
C0021: Paper Take-Up Motor M1 Turning at Abnormal Timing

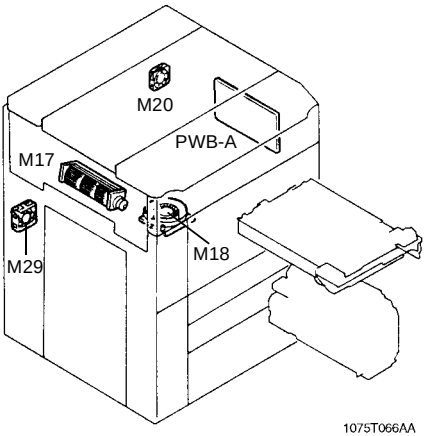
Symbol	Name
M1	Paper Take-Up Motor
PWB-A	Master Board





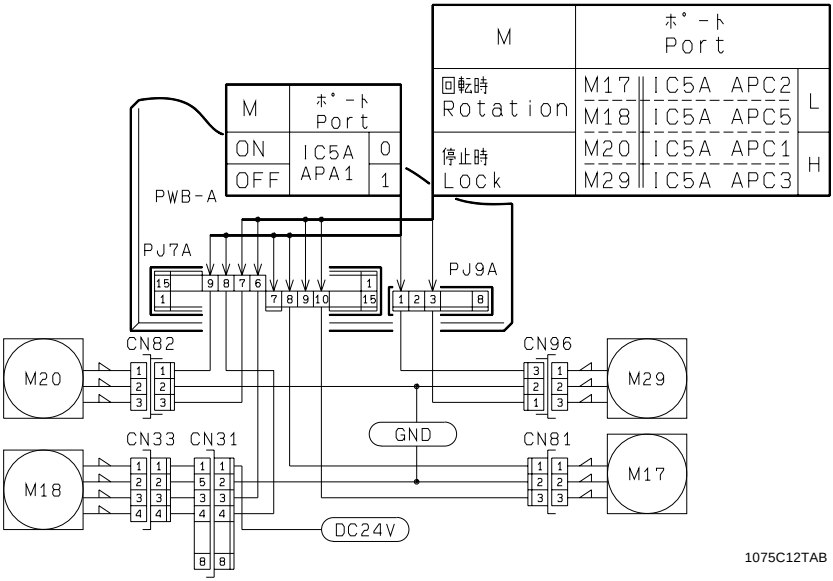
Step	Check Item	Result	Action
1	Is the malfunction code C0020?	NO	• To Step 5.
2	Check the M1 REM signal as described below: 1) Reset the malfunction. 2) Select "IC Port Data Check".	___	_____
	3) By changing the data of APA0 on PWB-A (IC5A) from "1" to "0", does M1 rotate? (See the 2/8 screen on T-7.)	NO	• To Step 4.
3	Check the M1 Lock signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APC4 on PWB-A (IC5A) "L"? (See the 2/8 screen on T-7.)	YES	• Change PWB-A.
		NO	• Check the gears, belt, etc. for overload. • Change M1.
4	By making a "Board Check" in "I/O Check", is the malfunction code displayed?	YES	• Change PWB-A.
		NO	• Check the gears, belt, etc. for overload. • Change M1.
5	Check the M1 REM signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APA0 on PWB-A (IC5A) "1"? (See the 2/8 screen on T-7.)	NO	• Change PWB-A.
6	Check the M1 Lock signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APC4 on PWB-A (IC5A) "H"? (See the 2/8 screen on T-7.)	YES	• Change PWB-A.
		NO	• Change M1.

2-4. C0040: Suction Fan Motor M18's Failure to Turn
C0042: Toner Suction Fan Motor M20's Failure to Turn
C0043: Toner Suction Fan Motor M20 Turning at Abnormal Timing
C004A: Optical Section Cooling Fan Motor M17's Failure to Turn
C004b: Optical Section Cooling Fan Motor M17 Turning at Abnormal Timing
C004E: Power Supply Unit Cooling Fan Motor M29's Failure to Turn
C004F: Power Supply Unit Cooling Fan Motor M29 Turning at Abnormal Timing



1075T066AA

Symbol	Name
M17	Optical Section Cooling Fan Motor
M18	Suction Fan Motor
M20	Toner Suction Fan Motor
M29	Power Supply Unit Cooling Fan Motor
PWB-A	Master Board



1075C12TAB

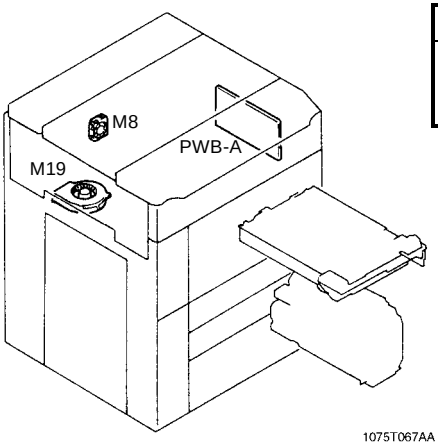
∗ Failure to Turn (C0040/C0042/C004A/C004E)

Step	Check Item	Result	Action
1	Check the Motor REM signal as described below: 1) Reset the malfunction. 2) Select "IC Port Data Check".	___	_____
	3) By changing the data of APA1 on PWB-A (IC5A) from "1" to "0", does the Motor corresponding to the malfunction code rotate? (See the 2/8 screen on T-7.)	NO	• To Step 3.
2	By making a "Board Check" in "I/O Check", is the malfunction code displayed?	YES	• Change PWB-A.
		NO	• Check the fan for overload. • Change the Motor corresponding to the malfunction code.
3	Check the Lock signal of the Motor corresponding to the malfunction codes as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of the Lock signal "L"? (See the 2/8 screen on T-7.) M17: APC2 on PWB-A (IC5A) M18: APC5 on PWB-A (IC5A) M20: APC1 on PWB-A (IC5A) M29: APC3 on PWB-A (IC5A)	YES	• Change PWB-A.
		NO	• Check the fan for overload. • Change the Motor corresponding to the malfunction code.

∗ Turning at Abnormal Timing (C0043/C004b/C004F)

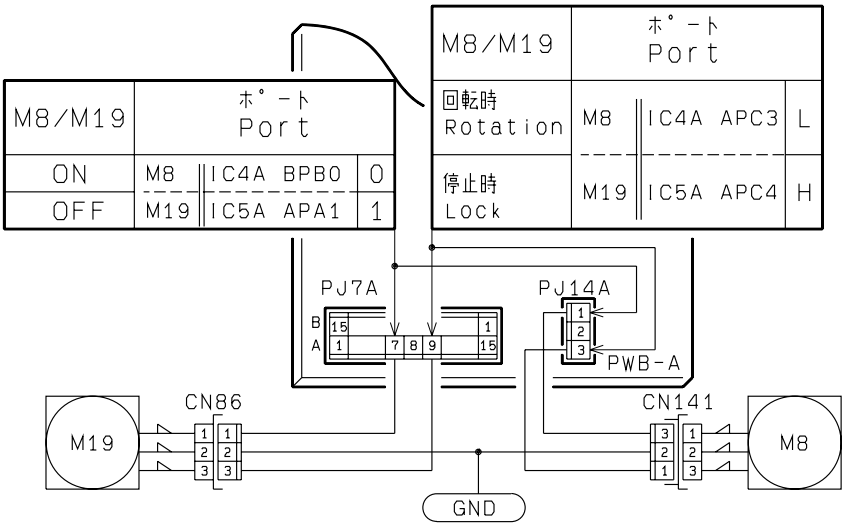
Step	Check Item	Result	Action
1	Check the Motor REM signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APA0 on PWB-A (IC5A) "1"? (See the 2/8 screen on T-7.)	NO	• Change PWB-A.
2	Check the Lock signal of the Motor corresponding to the malfunction codes as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of the Lock signal "H"? (See the 2/8 screen on T-7.) M17: APC2 on PWB-A (IC5A) M20: APC1 on PWB-A (IC5A) M29: APC3 on PWB-A (IC5A)	YES	• Change PWB-A.
		NO	• Check the fan for overload. • Change the Motor corresponding to the malfunction code.

2-5. C004c: Ventilation Fan Motor M8/M19's Failure to Turn
C004d: Ventilation Fan Motor M8/M19 Turning at Abnormal Timing



1075T067AA

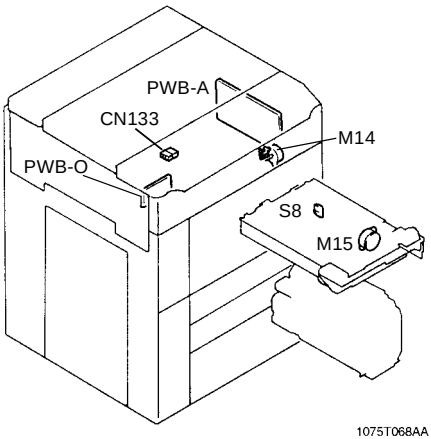
Symbol	Name
M8	Fusing Unit Ventilation Fan Motor
M19	Ventilation Fan Motor
PWB-A	Master Board



1075C13TAA

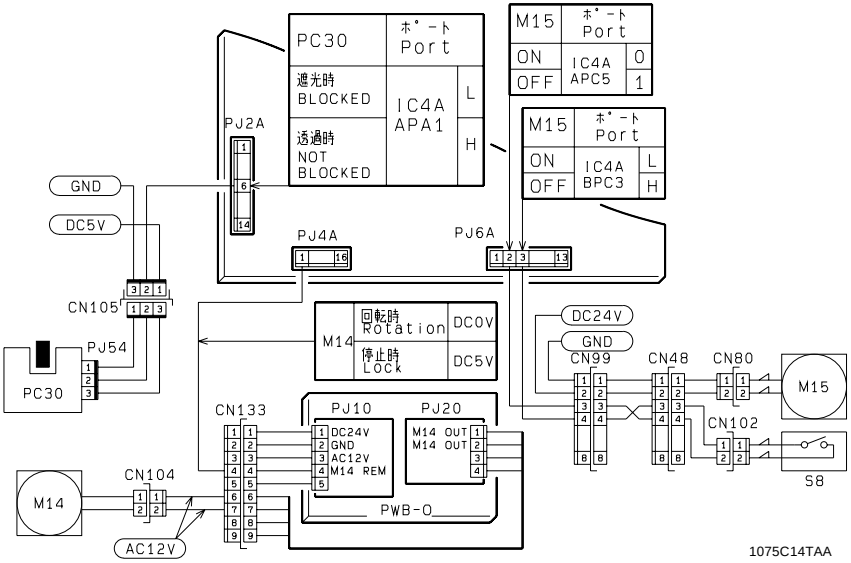
Step	Check Item	Result	Action
1	Is the malfunction code C004c?	NO	• To Step 5.
2	Check the M8/M19 REM signal as described below: 1) Reset the malfunction. 2) Select "IC Port Data Check".	___	_____
	3) By changing the data of BPB0 on PWB-A (IC4A) from "1" to "0", does M8 rotate? Also, by changing the data of APA1 on PWB-A (IC5A) from "1" to "0", does M19 rotate? (See the 2/8 screen on T-7.)	NO	• To Step 4.
3	Check the M8/M19 Lock signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APC4 on PWB-A (IC5A) "L"? (M8) Also, is the data of APC3 on PWB-A (IC4A) "L"? (M19) (See the 1/8 and 2/8 screen on T-7.)	YES	• Change PWB-A.
		NO	• Check the fan for overload. • Change M8 or M19.
4	By making a "Board Check" in "I/O Check", is the malfunction code displayed?	YES	• Change PWB-A.
		NO	• Check the fan for overload. • Change the Motor.
5	Check the M8/M19 REM signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of BPB0 on PWB-A (IC5A) "1"? (M8) Also, is the data of APC4 on PWB-A (IC5A) "1"? (M19) (See the 2/8 screen on T-7.)	NO	• Change PWB-A.
6	Check the M8/M19 Lock signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APC4 on PWB-A (IC5A) "H"? (M8) Also, is the data of APC3 on PWB-A (IC4A) "L"? (M19) (See the 1/8 and 2/8 screen on T-7.)	YES	• Change PWB-A.
		NO	• Change M8 or M19.

2-6. C0070: Main Hopper Toner Replenishing Motor M14's Failure to Turn
C0071: Main Hopper Toner Replenishing Motor M14 Turning at Abnormal Timing
C0072: Sub Hopper Toner Replenishing Motor M15's Failure to Turn



1075T068AA

Symbol	Name
M14	Main Hopper Toner Replenishing Motor
M15	Sub Hopper Toner Replenishing Motor
PC30	Toner Bottle Home Position Sensor
S8	Sub Hopper Toner Empty Detecting Switch
PWB-A	Master Board
PWB-O	M14/M16 Drive Board



1075C14TAA

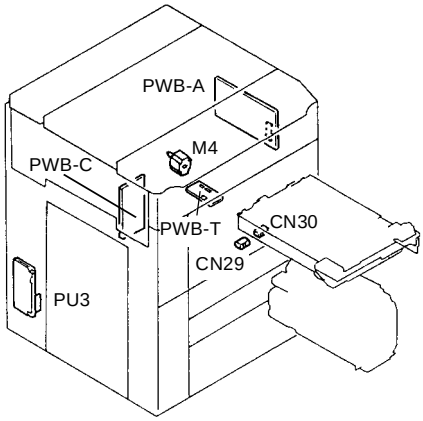
* C0070, C0071

Step	Check Item	Result	Action
1	Do as described below to check whether M14 rotates: 1) Open the Upper Front Door and turn the Toner Bottle slightly toward you. 2) Turn the Power Switch OFF and ON.	———	———
	3) Does the Toner Bottle turn when the Upper Front Door Setting Sensor is blocked?	NO	• To Step 3.
2	Does the Toner Bottle stop after turning?	YES	• Change PWB-A.
		NO	• Change PC30.
3	Do as in Step 1 again. Is the voltage across PJ4A-1 on PWB-A and GND DC0V?	———	———
4	Do as described below to check whether power is supplied to M14: 1) Remove and free the control panel. 2) Unplug CN133 (9P).	———	———
	3) Do as in Step 1. Is the voltage across CN133-6 and -7 AC12V?	YES	• Change M14.
		NO	• Change PWB-O.

* C0072

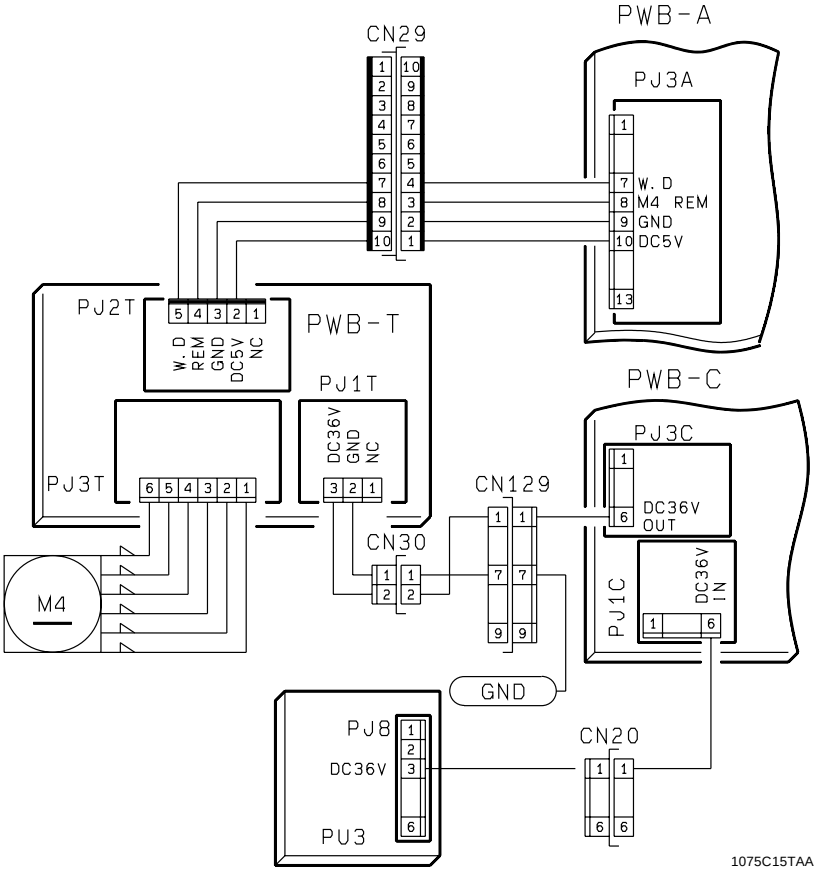
Step	Check Item	Result	Action
1	Is the amount of toner in the Sub Hopper so low that the system detects a toner-empty condition?	NO	• To Step 3.
2	Do as described below to check the input signal from S8 on detection of a toner empty condition: 1) Select "IC Port Data Check".	———	———
	2) Is the data of BPC3 on PWB-A (IC4A) "L"? (See the 2/8 screen on T-7.)	YES	• Change S8.
		NO	• Change PWB-A.
3	Check the output signal to M15 as described below: 1) Select "IC Port Data Check".	———	———
	2) Is the data of APC5 on PWB-A (IC4A) "0"? (See the 1/8 screen on T-7.)	YES	• Change M15.
		NO	• Change PWB-A.

2-7. C0080: Synchronizing Motor M4 Turning at Abnormal Timing



1075T069AB

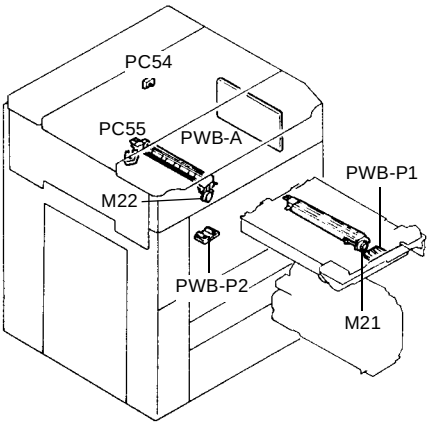
Symbol	Name
PU3	DC Stabilizing Power Supply 2
PWB-A	Master Board
PWB-C	Power Board
M4	Synchronizing Motor
PWB-T	Synchronizing Motor Control Board



1075C15TAA

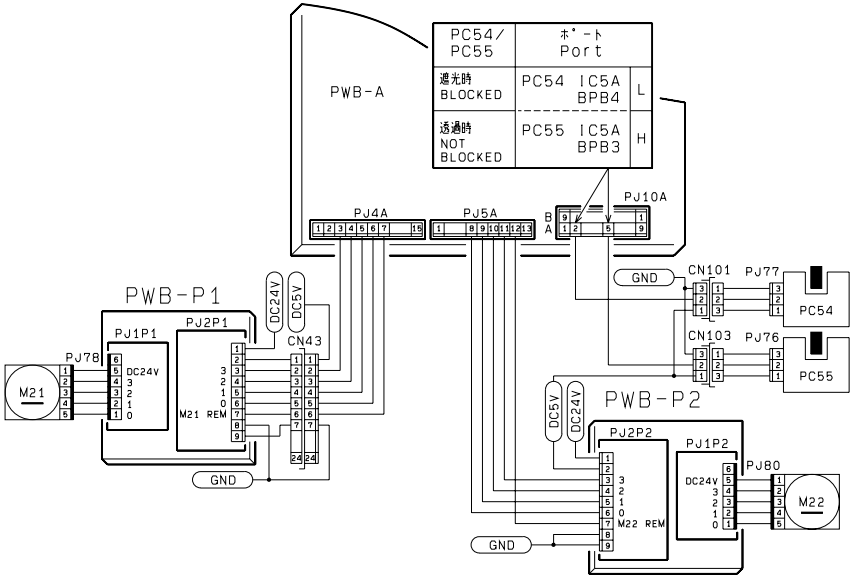
Step	Check Item	Result	Action
1	Is the voltage across CN30 (2P) Pin 2 and GND DC36V?	NO	• Check PU3 and PWB-C.
2	Are PJ3A and CN29 securely plugged into PWB-A?	YES	• Change PWB-A. If the malfunction occurs again, change PWB-T.
		NO	• Plug in PJ3A and CN29 securely.

2-8. C0100: PC Drum Charge Wire Cleaning Motor M21's Failure to Turn
C0110: Image Transfer/Paper Separator Charge Wire Cleaning Motor M22's Failure to Turn



1075T070AA

Symbol	Name
M21	PC Drum Charge Wire Cleaning Motor
M22	Image Transfer/Paper Separator Charge Wire Cleaning Motor
PC54	Drum Wire Cleaner Home Position Sensor
PC55	Transfer/Separator Wire Cleaner Home Position Sensor
PWB-A	Master Board
PWB-P1	PC Drum Charge Wire Cleaning Motor Drive Board
PWB-P2	Image Transfer/Paper Separator Charge Wire Cleaning Motor Drive Board

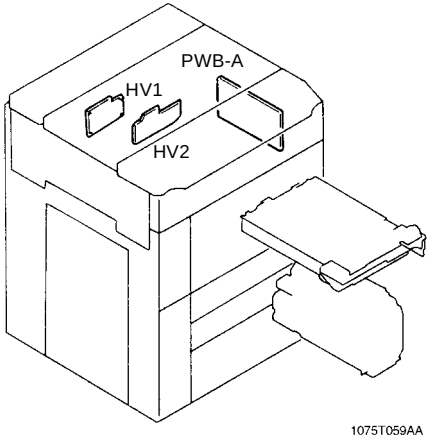


1075C16TAA

* The procedures for C0100 and C0110 are the same. The parts for C0110 are indicated in the parentheses.

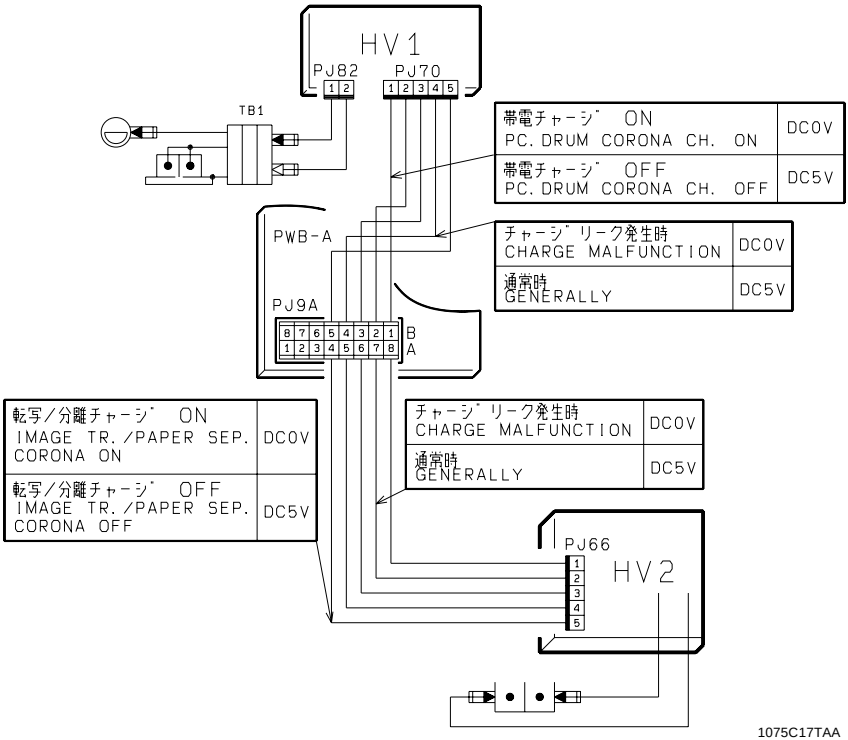
Step	Check Item	Result	Action
1	Is the Cleaner Holder at a stop in the home position? (In the back part of the Corona)	YES	• To Step 4.
2	Check PC54 (PC55) as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of BPB4 (BPB3) on PWB-A (IC5A) "H"? (See the 2/8 screen on T-7.)	NO	• Check the operation of the Actuator or change PC54 (PC55).
3	When the Screw Shaft is turned by hand, does the Cleaner Holder move smoothly?	YES	• Change PWB-P1 (PWB-P2). If the malfunction recurs, change PWB-A.
		NO	• Check the Stabilizing Plate for burrs, the Screw for deformation, and the Gear of M21 (M22).
4	Check PC54 (PC55) as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of BPB4 (BPB3) on PWB-A (IC5A) "H"? (See the 2/8 screen on T-7.)	YES	• Check the Stabilizing Plate for burrs, the Screw for deformation, and the Gear of M21 (M22). • Change PWB-P1 (PWB-P2). If the malfunction recurs, change PWB-A or M21 (M22).
		NO	• Check the operation of the Actuator or change PC54 (PC55).

2-9. C0200: PC Drum Charge Corona Failure
C0210: Image Transfer/Paper Separator Coronas Failure



1075T059AA

Symbol	Name
HV1	PC Drum Charge HV
HV2	Image Transfer/Paper Separator HV
PWB-A	Master Board



1075C17TAA

* C0200

Step	Check Item	Result	Action
1	Is the PC Drum Charge Corona installed properly?	NO	• Install the PC Drum Charge Corona properly.
2	Are the PC Drum Charge Corona wires dirty or have they snapped?	YES	• Clean or replace the corona wires.
3	Is "C0200" shown even when PJ70 is unplugged from PC Drum Charge HV HV1?	YES	• Replace PWB-A.
		NO	• Replace HV1.

* C0210

Step	Check Item	Result	Action
1	Is the Image Transfer/Paper Separator Coronas Unit installed properly?	NO	• Install the Image Transfer/Paper Separator Coronas Unit properly.
2	Are the Image Transfer/Paper Separator Coronas wires dirty or have they snapped?	YES	• Clean or replace the corona wires.
3	Is "C0210" shown even when PJ66 is unplugged from Image Transfer/Paper Separator HV HV2?	YES	• Replace PWB-A.
		NO	• Replace HV2.

2-10. C03** (Master Board, Harness malfunction)

* C0300 to C0334D

Step	Action
1	Change PWB-A.

* C0351, C0352, C0371, C0372

Step	Action
1	Check that PJ11A is securely plugged into PWB-A and PJ9F into PWB-F.
2	Change PWB-F or PWB-A.

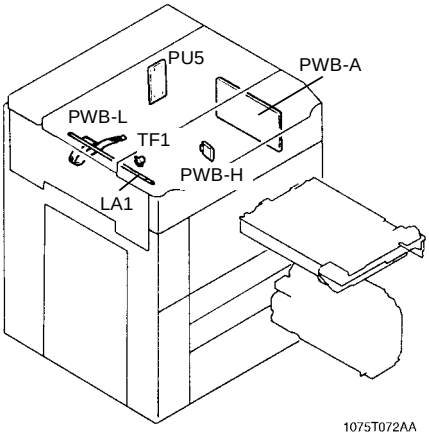
* C0353, C0373

Step	Action
1	Check that PJ13A and CN58 are securely plugged into PWB-A and PJ8F into PWB-F.
2	Change PWB-G or PWB-A.

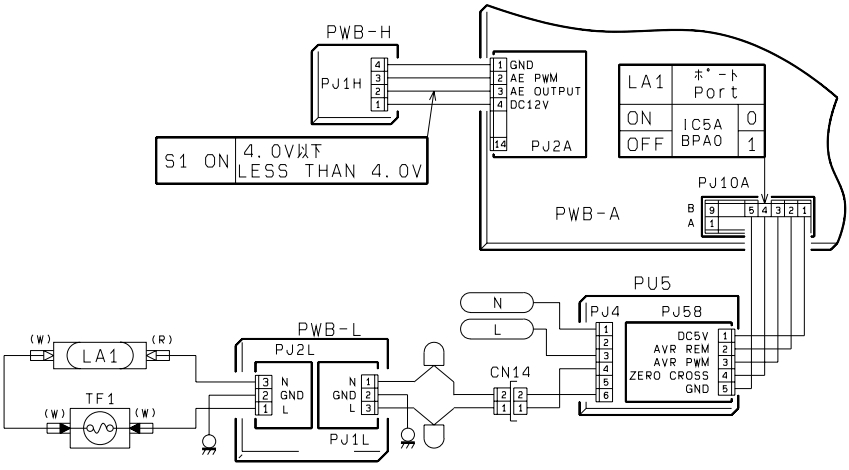
* C0354, C0374

Step	Action
1	Check that the connector for connection of the copier and C-302 is without fault.
2	Check that PJ13A is securely plugged into PWB-A and CN1A into C-302 PWB-A.
3	Change PWB-A or C-302 PWB-A.

2-11. C0400: Exposure Lamp LA1's Failure to Turn ON
C0410: Exposure Lamp LA1 Turning ON at Abnormal Timing

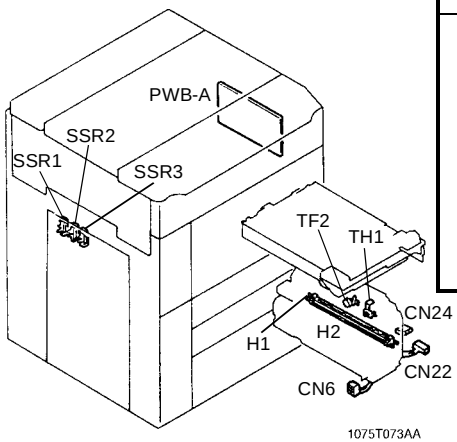


Symbol	Name
LA1	Exposure Lamp
TF1	Exposure Lamp Thermal Fuse
PU5	Exposure Lamp Regulator
PWB-A	Master Board
PWB-H	AE Sensor Board
PWB-L	Lamp Flat Cable



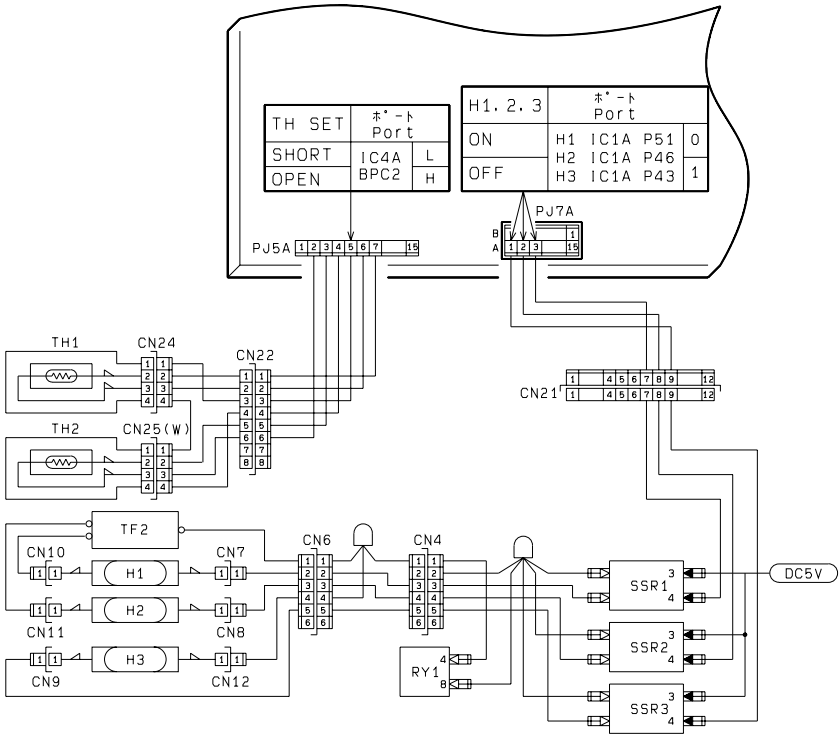
Step	Check Item	Result	Action
1	Do as described below to check whether the Exposure Lamp LA1 turns ON: 1) Reset the malfunction. 2) Select "IC Port Data Check".	___	_____
	3) By changing the data of BPA0 on PWB-A (IC5A) from "1" to "0", does LA1 turn ON? (See the 2/8 screen on T-7.)	YES	• To Step 7.
2	By making a "Board Check" in "I/O Check", is C0300 displayed?	YES	• Change PWB-A.
3	Unplug PJ2L (3P) from PWB-L. Is there continuity across 1 and 3 on the LA1 side?	YES	• To Step 5.
4	Is there continuity across TF1?	YES	• Change LA1.
		NO	• Reset TF1. * Note that after reset has been made, Step 7 must be executed and PU5 and the Optical Section Cooling Fan Motor checked.
5	Is there continuity across PJ2L (3P) and PJ1L (3P) on PWB-L?	NO	• Change PWB-L.
6	Is the voltage across PJ4-1 and -3 on PU5 the power supply voltage AC100V?	YES	• Change PU5.
		NO	• Check the power supply line.
7	Is the voltage across PJ2A-3 and GND 4.0V or less when the Power Switch is turned ON or the copier is in the standby state?	YES	• Clean the AE Sensor or change PWB-H.
		NO	• Change PWB-A.

2-12. C0500: Warming-Up Failure
C0510: Upper Fusing Roller Abnormally Low Temperature
C0520: Upper Fusing Roller Abnormally High Temperature
C0522: Upper Fusing Roller Thermistor TH1 Malfunction



1075T073AA

Symbol	Name
H1	Upper Fusing Roller Main Heater Lamp
H2	Upper Fusing Roller Sub Heater Lamp
TF2	Fusing Roller Thermal Fuse
TH1	Upper Fusing Roller Thermistor
SSR1	Upper Fusing Roller Main Heater Lamp SSR
SSR2	Upper Fusing Roller Sub Heater Lamp SSR
PWB-A	Master Board



1075C19TAA

* C0500, C0510

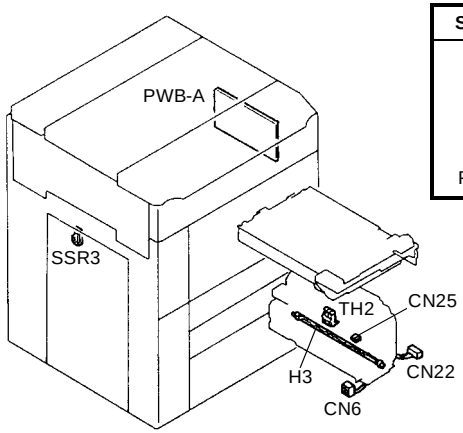
Step	Check Item	Result	Action
1	When the Fusing Unit Front Door is removed and the Power Switch is turned ON, do the Upper Fusing Roller Main and Sub Heater Lamps H1 and H2 light up?	NO	• To Step 4.
2	Is TH1 connected securely or clean?	YES	• Connect TH1 securely or clean TH1.
3	Disconnect CN24 (4P). Is the resistance across CN24-2 and -3 on the Fusing Unit side infinite?	YES	• Change TH1.
		NO	• Change PWB-A.
4	With the Power Switch ON and the Front Door closed, check the H1 and H2 ON/OFF signals from the Master Board as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of P51 (H1) and P46 (H2) on PWB-A (IC1A) "0"? (See the 1/8 screen on T-7.)	NO	• Change PWB-A.
5	Disconnect CN6 (6P). Is there continuity across CN6-1, 2 and 3 on the Fusing Unit side?	YES	• Change SSR1 or SSR2.
		NO	• Check H1, H2 and Fusing Thermoswitch TF2 for continuity.

* C0520, C0522

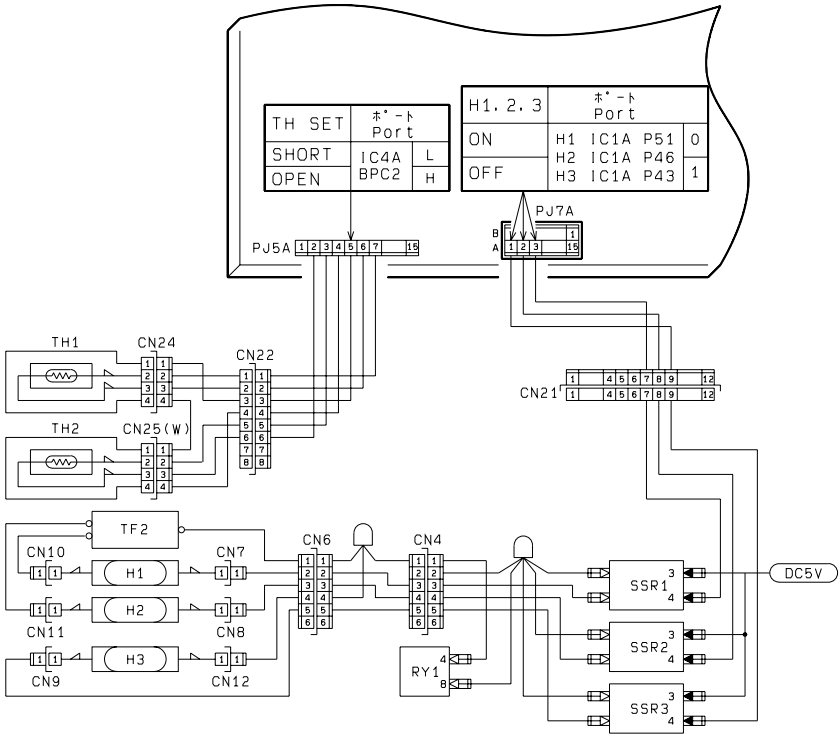
Step	Check Item	Result	Action
1	Do the Upper Fusing Roller Main and Sub Heater Lamps H1 and H2 remain lit up after the copier has completed warming up?	NO	• To Step 3.
2	By changing the H1 and H2 ON/OFF signals from the Master Board, check whether H1 and H2 are turned OFF or not as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of P51 (H1) and P46 (H2) on PWB-A (IC1A) "1"? (See the 1/8 screen on T-7.)	NO	• Change PWB-A.
	3) By pressing the "Change" key to change the data from "0" to "1", are H1 and H2 turned OFF?	NO	• Change SSR1 or SSR2.
3	Disconnect CN22 (8P). Is the circuit across CN22-1 and -2 on the Fusing Unit side shorted?	YES	Change TH1.
		NO	• Change PWB-A.

2-13. C0511: Lower Fusing Roller Abnormally Low Temperature
C0521: Lower Fusing Roller Abnormally High Temperature
C0523: Lower Fusing Roller Thermistor TH2 Malfunction
C0540: Fusing Roller Thermistor Loading Failure

Symbol	Name
H3	Lower Fusing Roller Heater Lamp
TH2	Lower Fusing Roller Thermistor
SSR3	Lower Fusing Roller Heater Lamp SSR
PWB-A	Master Board



1075T074AB



1075C19TAA

* C0511, C0523

Step	Check Item	Result	Action
1	When the Fusing Unit Front Door is removed and the copier has completed warming-up, does the Lower Fusing Roller Heater Lamp H3 light up?	NO	• To Step 4.
2	Is TH2 connected securely or clean?	YES	• Connect TH2 securely or clean TH2.
3	Disconnect CN25 (4P). Is the resistance across CN25-2 and -3 on the Fusing Unit side infinite?	YES	• Change TH2.
		NO	• Change PWB-A.
4	After the copier has completed warming-up, is the voltage across PJ7-1A on PWB-A and GND DC0V? (When H3 is turned ON)	NO	• Change PWB-A.
5	Disconnect CN6 (6P). Is there continuity across CN6-4 and -5 on the Fusing Unit side?	YES	• Change SSR3.
		NO	• Change H3.

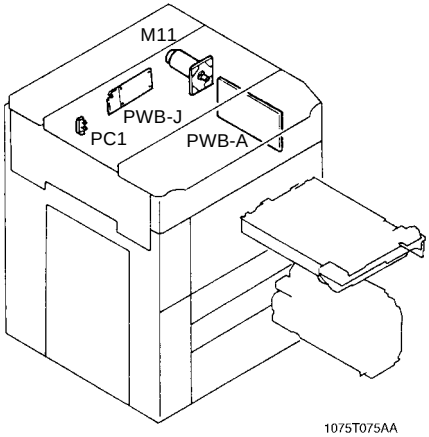
* C0523

Step	Check Item	Result	Action
1	After the copier has completed warming up, does the Lower Fusing Roller Heater Lamp H3 remain lit up?	NO	• To Step 3.
2	By changing the H3 ON/OFF signal from the Master Board, check whether H1 is turned OFF or not as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of P43 on PWB-A (IC1A) "1"? (See the 1/8 screen on T-7.)	NO	• Change PWB-A.
	3) By pressing the "Change" key to change the data from "0" to "1", is H3 turned OFF?	NO	• Change SSR3.
3	Disconnect CN22 (8P). Is the circuit across CN22-5 and -6 on the Fusing Unit side shorted?	YES	• Change TH3.
		NO	• Change PWB-A.

* C0540

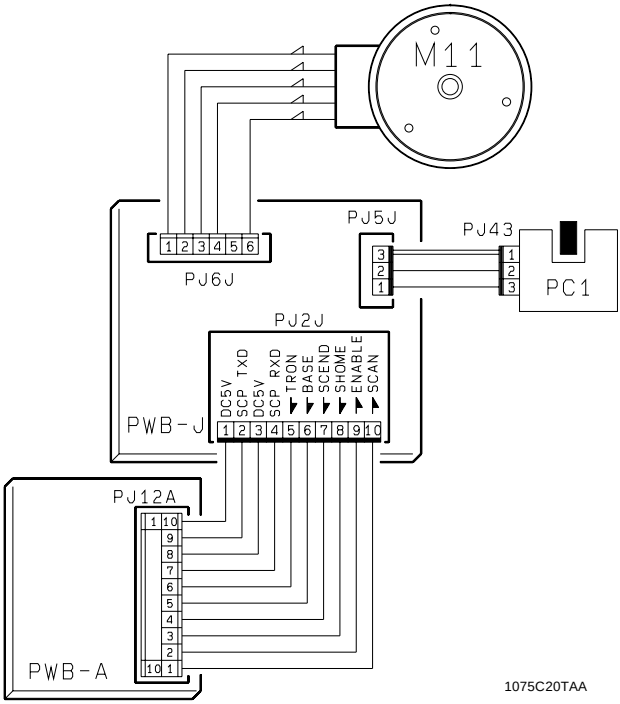
Step	Check Item	Result	Action
1	Check the Thermistor Loading signal as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of BPC2 on PWB-A (IC4A) "L"? (See the 2/8 screen on T-7.)	YES	• Change PWB-A.
		NO	• Check CN22 (8P), CN24 (4P) and CN25 (4P).

2-14. C0600: Scanner Motor M11 Malfunction
C0601: SCP Board PWB-J Malfunction
C0650: Scanner Reference Position Sensor PC1 Malfunction
C0660: Scanner Load Failure
C06F0 to C06F7: SHOME, BASE, TRON, SCEND Signal Failure



1075T075AA

Symbol	Name
M11	Scanner Motor
PC1	Scanner Reference Position Sensor
PWB-A	Master Board
PWB-J	SCP Board



1075C20TAA

* C0600, C0601

Step	Check Item	Result	Action
1	Is PJ6J securely plugged into PWB-J?	NO	• Plug it in securely.
2	When the Power Switch is turned ON, is the voltage across PJ6J-6 on PWB-J and GND DC5V?	NO	• Check the DC5V line.
3	Is C0600 being displayed?	YES	• Change M11.
4	Is C0601 being displayed?	YES	• Change PWB-J.

* C0650

Step	Check Item	Result	Action
1	Is PJ5J securely plugged into PWB-J and PJ43 into PC1?	NO	• Plug them in securely.
2	Is the Light Blocking Plate installed properly?	YES	• Change PC1.
		NO	• Reinstall.

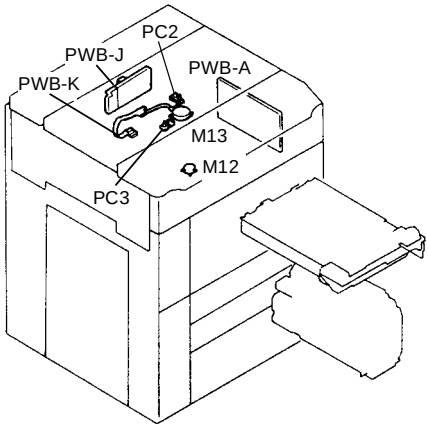
* C0660

Step	Check Item	Result	Action
1	With the Power Switch OFF, do you feel an overload when you move the Scanner manually?	YES	• Correct or change the Cables or part being overloaded.

* C06F0 to C06F7

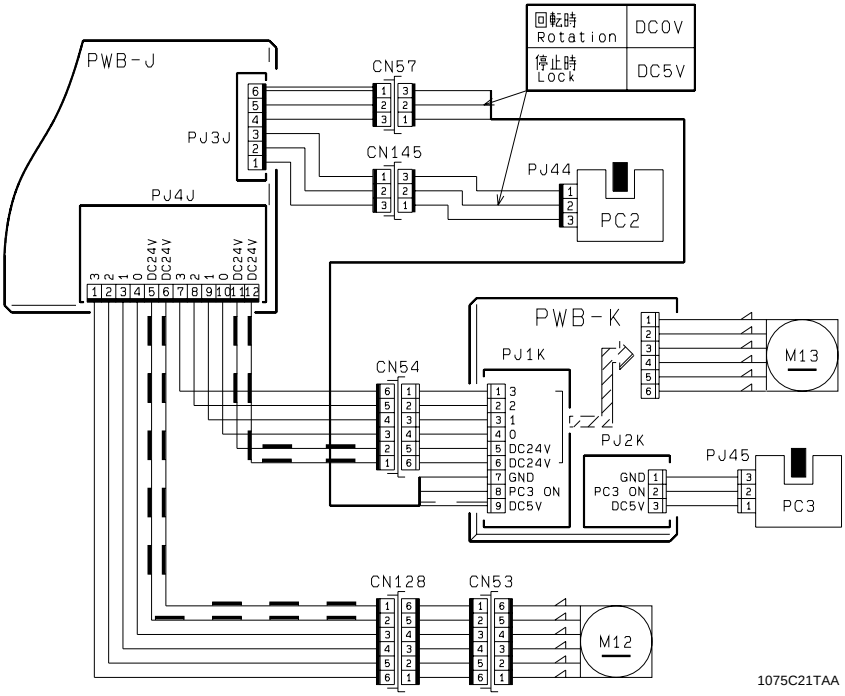
Step	Check Item	Result	Action
1	Is PJ12AB securely plugged into PWB-A and PJ2J into PWB-J?	YES	• Change PWB-A or PWB-J.
		NO	• Plug them in securely.

2-15. C0610: Lens X-Direction Motion Failure
C0611: Lens Y-Direction Motion Failure



1075T076AA

Symbol	Name
M12	Lens X-Direction Drive Motor
M13	Lens Y-Direction Drive Motor
PC2	Lens X-Direction Reference Position Sensor
PC3	Lens Y-Direction Reference Position Sensor
PWB-J	SCP Board
PWB-K	Lens Flat Cable



1075C21TAA

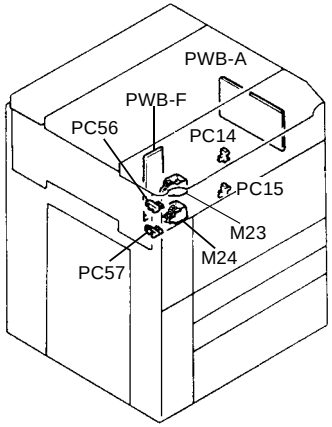
* C0610

Step	Check Item	Result	Action
1	When PC2 is blocked, does the voltage across PJ3J-2 on PWB-J and GND change from DC5V to DC0V?	NO	• Change PC2.
2	By opening and closing the Front Door, does the Lens move in the X direction?	YES	• Check the Cable Drive Section for any overload.
		NO	• Change M12 or PWB-J.

* C0611

Step	Check Item	Result	Action
1	When PC3 is blocked, does the voltage across PJ3J-5 on PWB-J and GND change from DC5V to DC0V?	NO	• To Step 3.
2	When PC3 is blocked, does the voltage across PJ2K-2 on PWB-K and GND change from DC5V to DC0V?	YES	• Check PWB-K. • Change PWB-K.
		NO	• Change PC3.
3	When the paper size has been changed, does the Lens attempt to move in the Y direction?	YES	• Check the Lens Drive Section for any overload.
		NO	• Change M11 or PWB-J.

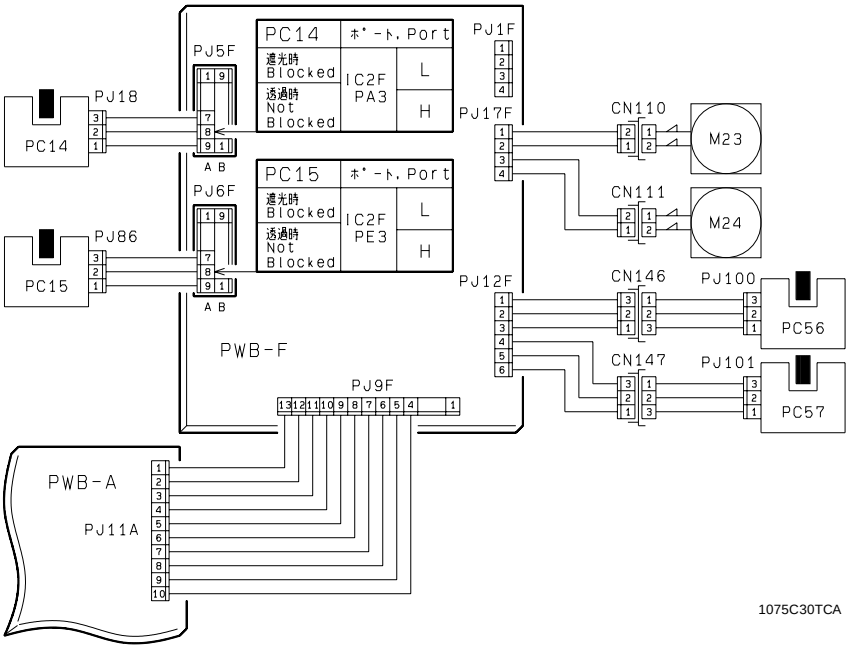
2-16. C0910: 2nd Drawer Lift-Up Failure
C0914: 2nd Drawer Lift-Up Motor M24's Failure to Turn
C0920: 1st Drawer Lift-Up Failure
C0924: 1st Drawer Lift-Up Motor M23's Failure to Turn



1075T078AA

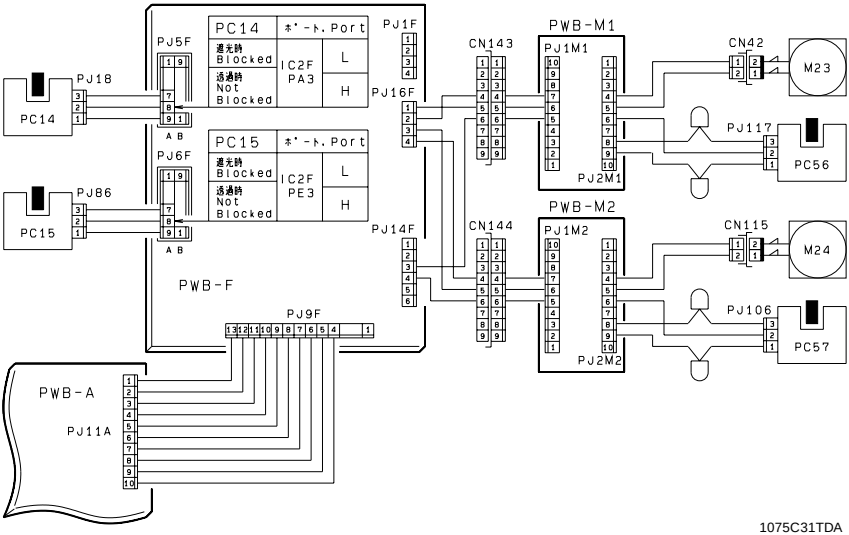
Symbol	Name
M23	1st Drawer Lift-Up Motor
M24	2nd Drawer Lift-Up Motor
PC14	1st Drawer Lift-Up Sensor
PC15	2nd Drawer Lift-Up Sensor
PC56	1st Drawer Lift-Up Motor Pulse Sensor
PC57	2nd Drawer Lift-Up Motor Pulse Sensor
PWB-A	Master Board
PWB-F	Drawer S/P Board

<Metric Areas>



1075C30TCA

<Inch Areas>


PC14
PJ18
PJ5F
PC14
ﾎﾟｰﾄ.Port
遮光時 Blocked
透過時 Not Blocked
IC2F PA3
L
H
PJ1F
PJ16F
PC15
PJ86
PJ6F
PC15
IC2F PE3
PJ14F
PWB-F
PJ9F
PWB-A
PJ11A
CN143
PWB-M1
PJ1M1
PJ2M1
CN42
M23
PJ117
PC56
CN144
PWB-M2
PJ1M2
PJ2M2
CN115
M24
PJ106
PC57
1075C31TDA

* C0910

Step	Check Item	Result	Action
1	Slide out the 2nd Drawer and check the 2nd Drawer Lift-Up Sensor PC15 as described below: 1) Select "IC Port Data Check".	___	_____
	2) <Metric Areas> Is the data of PE3 on PWB-F (3MJ) (IC2F) "H"? (See the 5/8 Screen on T-7.) <Inch Areas> Is the data of PE3 on PWB-F (3MC) (IC2F) "H"? (See the 6/8 Screen on T-7.)	NO	• Check the Paper Take-Up Roll Assy.
	3) Slide the 2nd Drawer back in to complete lift-up. (PC15: blocked).	___	_____
	4) Select "IC Port Data Check" again. <Metric Areas> Has the data of PE3 on PWB-F (3MJ) (IC2F) changed from "H" to "L"? <Inch Areas> Has the data of PE3 on PWB-F (3MC) (IC2F) changed from "H" to "L"?	YES	• Change PWB-F or PWB-A.
		NO	• Change PC15.

* C0920

Step	Check Item	Result	Action
1	Slide out the 1st Drawer and check the 1st Drawer Lift-Up Sensor PC14 as described below: 1) Select "IC Port Data Check".	___	_____
	2) <Metric Areas> Is the data of PA3 on PWB-F (3MJ) (IC2F) "H"? (See the 5/8 Screen on T-7.) <Inch Areas> Is the data of PA3 on PWB-F (3MC) (IC2F) "H"? (See the 6/8 Screen on T-7.)	NO	• Check the Paper Take-Up Roll Assy.
	3) Slide the 1st Drawer back in to complete lift-up. (PC14: blocked).	___	_____
	4) Select "IC Port Data Check" again. <Metric Areas> Has the data of PA3 on PWB-F (3MJ) (IC2F) changed from "H" to "L"? <Inch Areas> Has the data of PA3 on PWB-F (3MC) (IC2F) changed from "H" to "L"?	YES	• Change PWB-F or PWB-A.
		NO	• Change PC14.

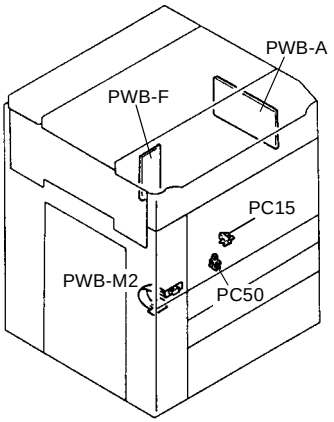
* C0914

Step	Check Item	Result	Action
1	Slide out the 2nd Drawer and slide it back in. Does the 2nd Drawer Lift-Up Motor M24 rotate?	YES	• To Step 3.
2	When the 2nd Drawer is slid in, does the voltage across PJ17F-3 (Metric Areas) or PJ16F-3 (Inch Areas) on PWB- F and GND change from DC0V to DC24V and then change to DC0V again?	YES	• Change M24.
		NO	• Change PWB-F or PWB-A.
3	While M24 is rotating, does the voltage across PJ12F-5 (Metric Areas) or PJ14F-4 (Inch Areas) on PWB-F and GND change in the range DC0V to DC5V?	YES	• Change PWB-F or PWB-A.
		NO	• Check the inside of the Lift-Up Motor Assy. • Change PC57.

* C0924

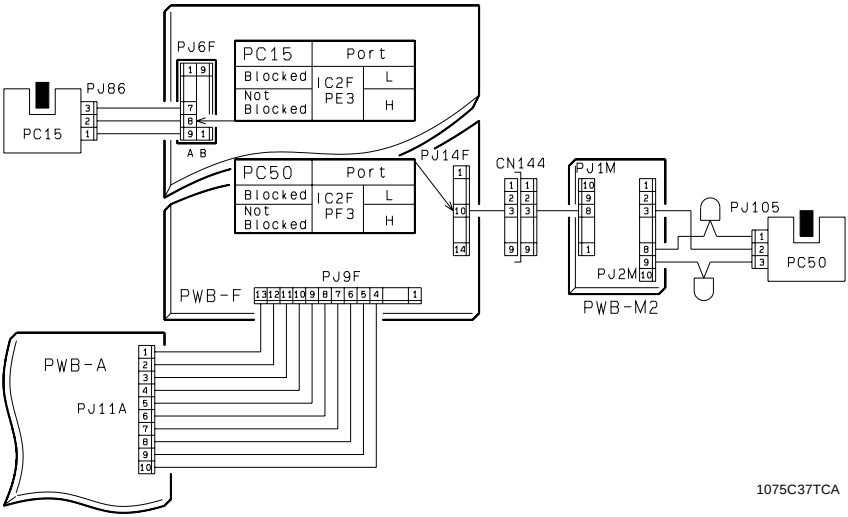
Step	Check Item	Result	Action
1	Slide out the 1st Drawer and slide it back in. Does the 1st Drawer Lift-Up Motor M23 rotate?	YES	• To Step 3.
2	When the 1st Drawer is slid in, does the voltage across PJ17F-1 (Metric Areas) or PJ16F-1 (Inch Areas) on PWB- F and GND change from DC0V to DC24V and then change to DC0V again?	YES	• Change M23.
		NO	• Change PWB-F or PWB-A.
3	While M23 is rotating, does the voltage across PJ12F-2 (Metric Areas) or PJ14F-3 (Inch Areas) on PWB-F and GND change in the range DC0V to DC5V?	YES	• Change PWB-F or PWB-A.
		NO	• Check the inside of the Lift-Up Motor Assy. • Change PC56.

2-17. C0911: 2nd Drawer Lower-Down Failure (Inch Areas)
C0912: 2nd Drawer Lower-Down Failure, 2nd Drawer Lock Failure
C0913: 2nd Drawer Lock Failure
C0916: 2nd Drawer Lock Release Failure



1075T104CA

Symbol	Name
PC15	2nd Drawer Lift-Up Sensor
PC50	2nd Drawer Lower Limit Position Sensor
PWB-A	Master Board
PWB-F	Drawer S/P Board
PWB-M2	2nd Drawer Flexible Printed Circuit



1075C37TCA

∗ C0911 (Inch Areas)

Step	Check Item	Result	Action
1	Slide out the 2nd Drawer and check the 2nd Drawer Lift-Up Sensor PC15 as described below: 1) Select "IC Port Data Check".	———	———
	2) Is the data of PE3 on PWB-F (3MC) (IC2F) "H"? (See the 6/8 screen on T-7.)	NO	• Check the Paper Take-Up Roll Assy.
	3) Slide the 2nd Drawer back in and press the 2nd Drawer Paper Descent Key to complete lift-up. (PC15: blocked)	———	———
	4) Select "IC Port Data Check" again. Has the data of PE3 on PWB-F (3MC) (IC2F) changed from "H" to "L"?	YES	• Change PWB-F or PWB-A.
		NO	• Change PWB-M2 or PC15.

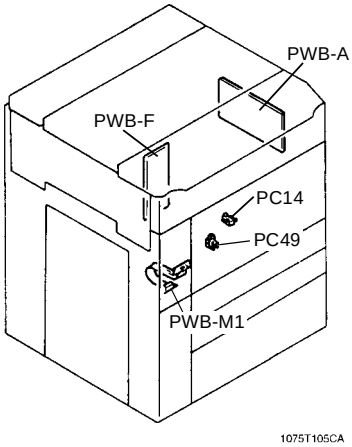
∗ C0912, C0913 (Inch Areas)

Step	Check Item	Result	Action
1	Check the 2nd Drawer Lower Limit Position Sensor PC50 as described below: 1) Select "IC Port Data Check".	———	———
	<PC50 is blocked> 2) Is the data of PF3 on PWB-F (3MC) (IC2F) "L"? (See the 6/8 screen on T-7.)	YES	• Change PWB-F or PWB-A.
		NO	• Change PWB-M2 or PC50.
	<PC50 is not blocked> 3) Is the data of PF3 on PWB-F (3MC) (IC2F) "H"? (See the 6/8 screen on T-7.)	YES	• Change PWB-F or PWB-A.
		NO	• Change PWB-M2 or PC50.

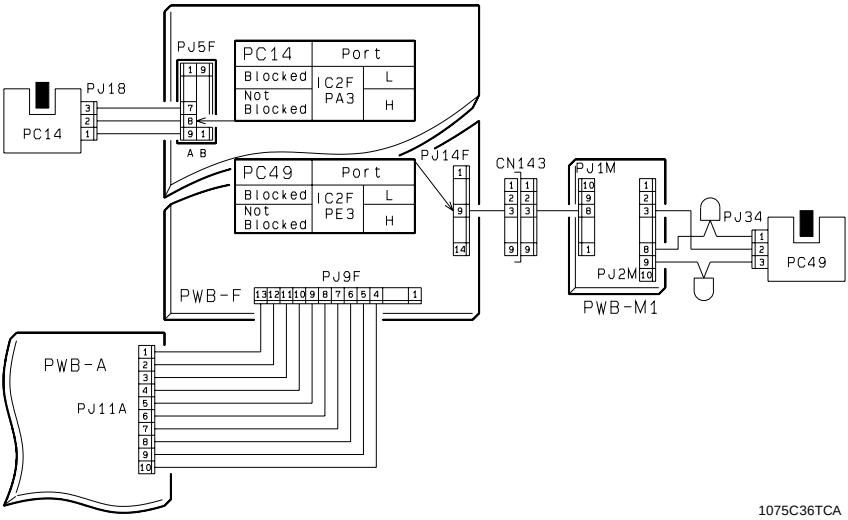
∗ C0916 (Inch Areas)

Step	Check Item	Result	Action
1	Remove the Right Door, push the Lock Lever forward with a flat- blade screwdriver to unlock and slide out the 2nd Drawer.	———	———
2	Is the Lock Release Spring Installed properly?	NO	• Reinstall or change.
3	Are the Lock Lever and Torsion Spring installed properly?	NO	• Reinstall or change.

2-18. C0921: 1st Drawer Lower-Down Failure (Inch Areas)
C0922: 1st Drawer Lower-Down Failure, 1st Drawer Lock Failure
C0923: 1st Drawer Lock Failure
C0926: 1st Drawer Lock Release Failure



Symbol	Name
PC14	1st Drawer Lift-Up Sensor
PC49	1st Drawer Lower Limit Position Sensor
PWB-A	Master Board
PWB-F	Drawer S/P Board
PWB-M1	1st Drawer Flexible Printed Circuit



* C0921 (Inch Areas)

Step	Check Item	Result	Action
1	Slide out the 1st Drawer and check the 1st Drawer Lift-Up Sensor PC14 as described below: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of PA3 on PWB-F (3MC) (IC2F) "H"? (See the 6/8 screen on T-7.)	NO	• Check the Paper Take-Up Roll Assy.
	3) Slide the 1st Drawer back in and press the 1st Drawer Paper Descent to complete lift-up. (PC14: blocked)	___	_____
	4) Select "IC Port Data Check" again. Has the data of PA3 on PWB-F (3MC) (IC2F) changed from "H" to "L"?	YES	• Change PWB-F or PWB-A.
		NO	• Change PWB-M1 or PC14.

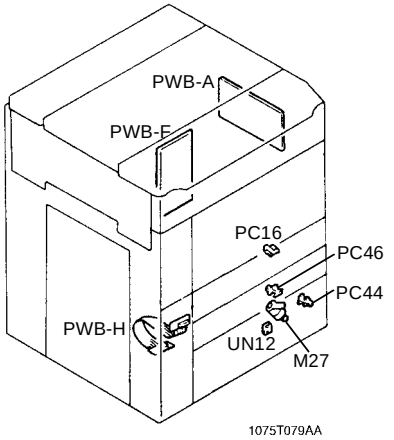
* C0922, C0923 (Inch Areas)

Step	Check Item	Result	Action
1	Check the 1st Drawer Lower Limit Position Sensor PC49 as described below: 1) Select "IC Port Data Check".	___	_____
	<PC49 is blocked> 2) Is the data of PF2 on PWB-F (3MC) (IC1F) "L"? (See the 6/8 screen on T-7.)	YES	• Change PWB-F or PWB-A.
		NO	• Change PWB-M1 or PC49.
	<PC49 is not blocked> 3) Is the data of PF2 on PWB-F (3MC) (IC1F) "H"? (See the 6/8 screen on T-7.)	YES	• Change PWB-F or PWB-A.
		NO	• Change PWB-M1 or PC49.

* C0926 (Inch Areas)

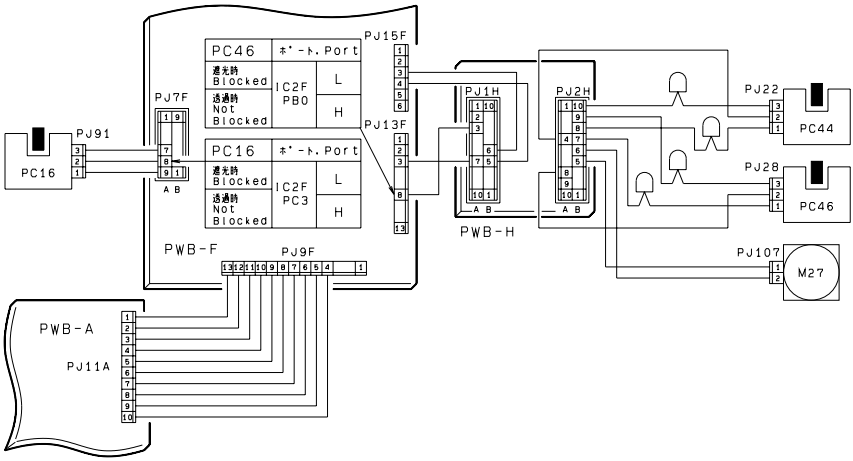
Step	Check Item	Result	Action
1	Remove the Right Door, push the Lock Lever forward with a flat- blade screwdriver to unlock and slide out the 1st Drawer.	___	_____
2	Is the Lock Release Spring Installed properly?	NO	• Reinstall or change.
3	Are the Lock Lever and Torsion Spring installed properly?	NO	• Reinstall or change.

2-19. C0990: Main Tray Upward Motion Failure
C0991: Main Tray Downward Motion Failure
C0992: Main Tray Downward Motion Failure
C0993: Main Tray Upward Motion Failure
C0994: 3rd Drawer Elevator Motor M27's Failure to Turn



1075T079AA

Symbol	Name
M27	3rd Drawer Elevator Motor
PC16	3rd Drawer Lift-Up Sensor
PC44	3rd Drawer Elevator Motor Pulse Sensor
PC46	3rd Drawer Tray Lower Position Sensor
UN12	3rd Drawer Paper Descent Key
PWB-A	Master Board
PWB-F	Drawer S/P Board
PWB-H	3rd Drawer Flexible Printed Circuit



1075C32TAA

* C0990, C0991

Step	Check Item	Result	Action
1	Slide out the 3rd Drawer and check the 3rd Drawer Lift-Up Sensor PC16 as described below: 1) Select "IC Port Data Check".	___	_____
	2) <Metric Areas> Is the data of PC3 on PWB-F (3MJ) (IC2F) "H"? (See the 5/8 Screen on T-7.) <Inch Areas> Is the data of PC3 on PWB-F (3MC) (IC2F) "H"? (See the 6/8 Screen on T-7.)	NO	• Check the Paper Take-Up Roll Assy.
	3) Slide the 3rd Drawer back in to complete lift-up. (PC16: blocked).	___	_____
	4) Select "IC Port Data Check" again. <Metric Areas> Has the data of PC3 on PWB-F (3MJ) (IC2F) changed from "H" to "L"? <Inch Areas> Has the data of PC3 on PWB-F (3MC) (IC2F) changed from "H" to "L"?	YES	• Change PWB-F or PWB-A.
		NO	• Change PC16.

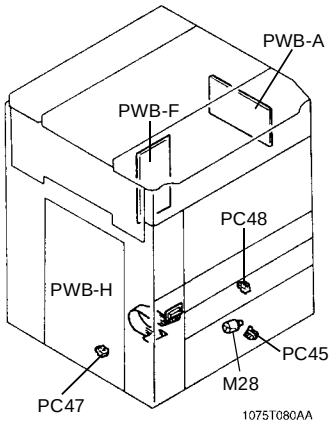
* C0992, C0993

Step	Check Item	Result	Action
1	Slide out the 3rd Drawer and check the 3rd Drawer Tray Lower Position Sensor PC46 as described below: 1) Select "IC Port Data Check".	___	_____
	2) <Metric Areas> Is the data of PB0 on PWB-F (3MJ) (IC2F) "L"? (See the 5/8 Screen on T-7.) <Inch Areas> Is the data of PB0 on PWB-F (3MC) (IC2F) "L"? (See the 6/8 Screen on T-7.)	NO	• Check that the Main Tray is in the lowermost position.
	3) With the 3rd Drawer slid out, lift up the Main Tray to unblock PC46.	___	_____
	4) Select "IC Port Data Check" again. <Metric Areas> Has the data of PB0 on PWB-F (3MJ) (IC2F) changed from "L" to "H"? <Inch Areas> Has the data of PB0 on PWB-F (3MC) (IC2F) changed from "L" to "H"?	YES	• Change PWB-F or PWB-A.
		NO	• Change PC46/PWB-H.

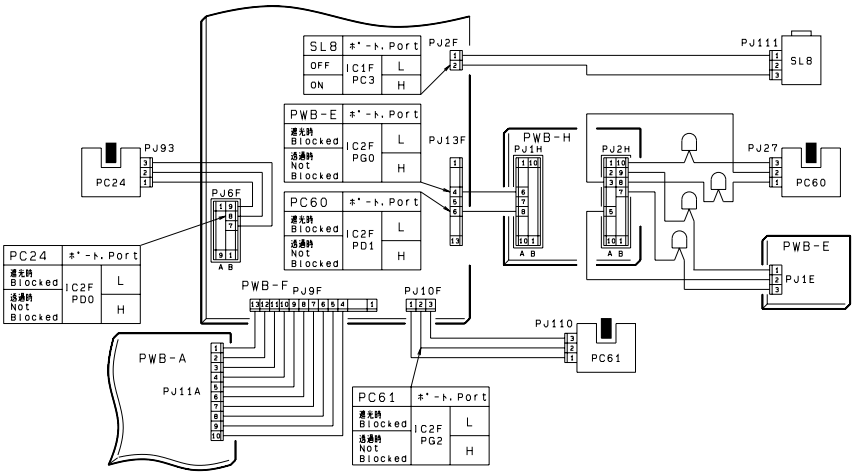
* C0994

Step	Check Item	Result	Action
1	Does the 3rd Drawer Elevator Motor M27 rotate when the Drawer Paper Descent Key is pressed? (Does the Main Tray descend?)	YES	• To Step 3.
2	When the 3rd Drawer is slid in or the Drawer Paper Descent Key is pressed, does the voltage across PJ15F-3 (ascent)/-4 (descent) on PWB-F and GND change from DC0V to DC24V?	YES	• Change M27. • Check PWB-H
		NO	• Change PWB-F or PWB-A.
3	While M27 is rotating, does the voltage across PJ13F-3 on PWB-F and GND change in the range DC0V to DC5V?	YES	• Change PWB-F or PWB-A.
		NO	• Check the Pulse Discs, Gears, etc. • Change PC44.

2-20. C0998: Shifter Transfer Failure
C0999: Shifter Return Failure
C099A: Shifter Return Failure
C099b: Shifter Transfer Failure
C099C: 3rd Drawer Shift Motor M28's Failure to Turn



Symbol	Name
M28	3rd Drawer Shift Motor
PC45	3rd Drawer Shift Motor Pulse Sensor
PC47	3rd Drawer Shifter Home Position Sensor
PC48	3rd Drawer Shifter Return Position Sensor
PWB-A	Master Board
PWB-F	Drawer S/P Board
PWB-H	3rd Drawer Flexible Printed Circuit



* C0998, C0999

Step	Check Item	Result	Action
1	Slide out the 3rd Drawer and check the 3rd Drawer Shifter Return Position Sensor PC48 as described below: 1) Select "IC Port Data Check".	___	_____
	2) <Metric Areas> Is the data of PB1 on PWB-F (3MJ) (IC2F) "H"? (See the 5/8 Screen on T-7.) <Inch Areas> Is the data of PB1 on PWB-F (3MC) (IC2F) "H"? (See the 6/8 Screen on T-7.)	NO	• Check the position of the Shifter.
	3) With the 3rd Drawer slid out, lift up the Main Tray to unblock PC48.	___	_____
	4) Select "IC Port Data Check" again. <Metric Areas> Has the data of PB1 on PWB-F (3MJ) (IC2F) changed from "H" to "L"? <Inch Areas> Has the data of PB1 on PWB-F (3MC) (IC2F) changed from "H" to "L"?	YES	• Change PWB-F or PWB-A.
		NO	• Change PC48/PWB-H.

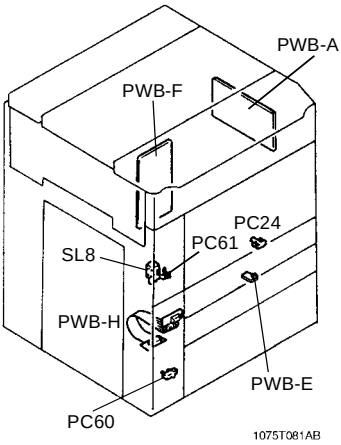
* C099A, C099b

Step	Check Item	Result	Action
1	Slide out the 3rd Drawer and check the 3rd Drawer Shifter Home Position Sensor PC47 as described below: 1) Select "IC Port Data Check".	___	_____
	2) <Metric Areas> Is the data of PF0 on PWB-F (3MJ) (IC2F) "L"? (See the 5/8 Screen on T-7.) <Inch Areas> Is the data of PF0 on PWB-F (3MC) (IC2F) "L"? (See the 6/8 Screen on T-7.)	NO	• Check that the Shifter is in the home position.
	3) Remove the Shift Tray and Blocking Plate to unblock PC47.	___	_____
	4) Select "IC Port Data Check" again. <Metric Areas> Has the data of PF0 on PWB-F (3MJ) (IC2F) changed from "L" to "H"? <Inch Areas> Has the data of PF0 on PWB-F (3MC) (IC2F) changed from "L" to "H"?	YES	• Change PWB-F or PWB-A.
		NO	• Change PC47/PWB-H.

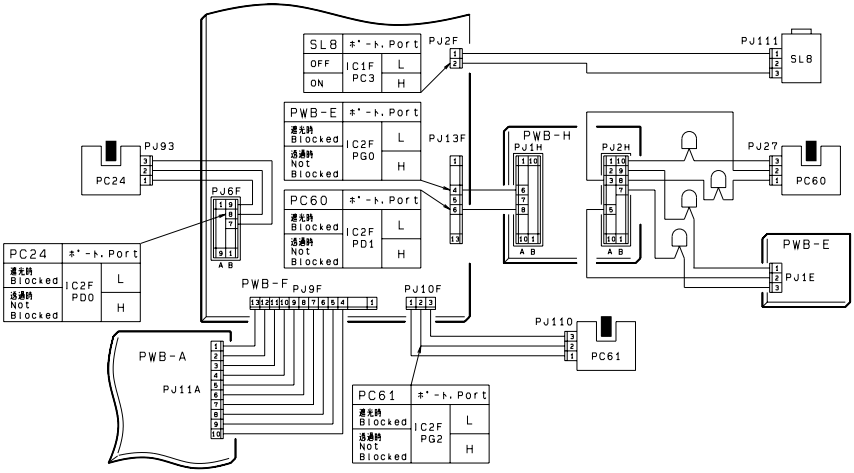
* C099C

Step	Check Item	Result	Action
1	After loading a paper stack in the Shift Tray, slide the 3rd Drawer into the copier. Does the 3rd Drawer Shift Motor M28 rotate? (Is the paper stack transferred to the Main Tray?)	YES	• To Step 3.
2	In Step 1, does the voltage across PJ15F-1 (rightward motion) on PWB-F and GND change from DC0V to DC24V?	YES	• Change M28. • Check PWB-H.
		NO	• Change PWB-F or PWB-A.
3	While M28 is rotating, does the voltage across PJ13F-2 on PWB-F and GND change in the range DC0V to DC5V?	YES	• Change PWB-F or PWB-A.
		NO	• Check the Pulse Discs, Gears, Belt, etc. • Change PC45.

2-21. C0996: 3rd Drawer Lock Release Failure
C0F79: Paper Empty Sensor Failure



Symbol	Name
PC24	3rd Drawer Paper Empty Sensor
PC60	3rd Drawer Shift Tray Paper Empty Sensor
PC61	3rd Drawer Set Sensor
SL8	3rd Drawer Lock Solenoid
PWB-A	Master Board
PWB-E	3rd Drawer Main Tray Paper Empty Board
PWB-F	Drawer S/P Board
PWB-H	3rd Drawer Flexible Printed Circuit



* C0996

Step	Check Item	Result	Action
1	Check the operation of the 3rd Drawer Lock Solenoid SL8 as described below: 1) Reset the malfunction. 2) Select "IC Port Data Check".	___	_____
	3) <Metric Areas> Is the data of PC3 on PWB-F (3MJ) (IC1F) "1" (SL8: deenergized)? (See the 4/8 Screen on T-7.) <Inch Areas> Is the data of PC3 on PWB-F (3MC) (IC1F) "1" (SL8: deenergized)? (See the 5/8 Screen on T-7.)	NO	• Change PWB-F or PWB-A.
	4) By pressing the "Change" key to change the data from "1" to "0", does SL8 operate? (Make sure that SL8 makes a sound.)	YES	• Check the Drawer Lock mechanism.
		NO	• Change SL8.
2	Do as described below to check the 3rd Drawer Set Sensor PC61 when the 3rd Drawer is slid in: 1) Select "IC Port Data Check".	___	_____
	2) <Metric Areas> Is the data of PG2 on PWB-F (3MJ) (IC2F) "[L]"? (See the 5/8 Screen on T-7.) <Inch Areas> Is the data of PG2 on PWB-F (3MC) (IC2F) "[L]"? (See the 6/8 Screen on T-7.)	NO	• Check the 3rd Drawer Set Detecting Plate.
	3) Remove the Lower Rear Door and forcibly unlock the 3rd Drawer with a screwdriver to push it out. (PC61: not blocked)	___	_____
	4) Select "IC Port Data Check" again. <Metric Areas> Has the data of PG2 on PWB-F (3MJ) (IC2F) changed from "[L]" to "[H]"? <Inch Areas> Has the data of PG2 on PWB-F (3MC) (IC2F) changed from "[L]" to "[H]"?	YES	• Change PWB-F or PWB-A.
		NO	• Change PC61.

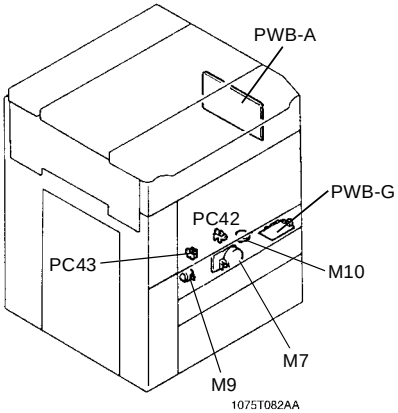
* C0F79

Step	Check Item	Result	Action
1	Does this failure occur when the Main Tray has completed upward motion?	YES	• To Step 3.
2	Does this failure occur when the Main Tray has completed downward motion or on completion of paper transfer from the Shift Tray to the Main Tray?	YES	• To Steps 4, 5.
3	With the paper stack lifting up the Actuator, check the 3rd Drawer Paper Empty Sensor PC24 as described below: 1) Select "IC Port Data Check".	———	———————————
	2) <Metric Areas> Is the data of PD0 on PWB-F (3MJ) (IC2F) "[L]"? (See the 5/8 Screen on T-7.) <Inch Areas> Is the data of PD0 on PWB-F (3MC) (IC2F) "[L]"? (See the 6/8 Screen on T-7.)	YES	• Change PWB-F or PWB-A.
		NO	• Change PC24.
4	Slide out the 3rd Drawer and do as described below to check that no paper exists on the 3rd Drawer Main Tray Paper Empty Detecting Board PWB-E: 1) Select "IC Port Data Check".	———	———————————
	2) <Metric Areas> Is the data of PG0 on PWB-F (3MJ) (IC2F) "[H]"? (See the 5/8 Screen on T-7.) <Inch Areas> Is the data of PG0 on PWB-F (3MC) (IC2F) "[H]"? (See the 6/8 Screen on T-7.)	NO	• Change PWB-E or PWB-H.
	3) Using a sheet of paper, block PWB-E.	———	———————————
	4) Select "IC Port Data Check" again. <Metric Areas> Has the data of PG0 on PWB-F (3MJ) (IC2F) changed from "[H]" to "[L]"? <Inch Areas> Has the data of PG0 on PWB-F (3MC) (IC2F) changed from "[H]" to "[L]"?	YES	• Change PWB-F or PWB-A.
		NO	• Change PWB-E or PWB-H.

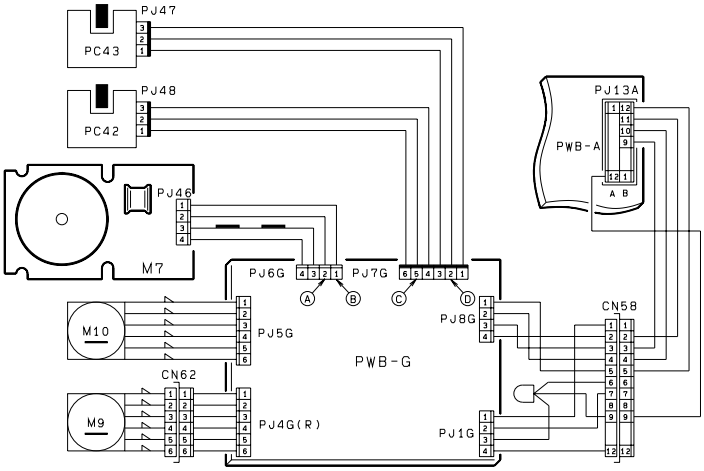
* C0F79

Step	Check Item	Result	Action
5	With no paper on the Shift Tray, check the 3rd Drawer Shift Tray Paper Empty Sensor PC60 as described below: 1) Select "IC Port Data Check".	___	_____
	2) <Metric Areas> Is the data of PD1 on PWB-F (3MJ) (IC2F) "H"? (See the 5/8 Screen on T-7.) <Inch Areas> Is the data of PD1 on PWB-F (3MC) (IC2F) "H"? (See the 6/8 Screen on T-7.)	NO	• Change PC60 or PWB-H.
	3) Using a sheet of paper, block PC60.	___	_____
	4) Select "IC Port Data Check" again. <Metric Areas> Has the data of PD1 on PWB-F (3MJ) (IC2F) changed from "H" to "L"? <Inch Areas> Has the data of PD1 on PWB-F (3MC) (IC2F) changed from "H" to "L"?	YES	• Change PWB-F or PWB-A.
		NO	• Change PC60 or PWB-H.

2-22. C0d00: Duplex Unit Front/Rear Edge Guide Plates Home Position Detection Failure
C0d20: Duplex Unit Trailing Gate Unit Home Position Detection Failure
C0d50: Duplex Unit Drive Motor M7's Failure to Turn
C0d51: Duplex Unit Drive Motor M7 Turning at Abnormal Timing



Symbol	Name
M7	Duplex Unit Drive Motor
M9	Gate Drive Motor
M10	Front/Rear Edge Guide Drive Motor
PC42	Front/Rear Edge Guide Plate Home Position Sensor
PC43	Duplex Gate Home Position Sensor
PWB-A	Master Board
PWB-G	Duplex Unit S/P Board



Ⓐ M7 REM	ｷﾞｰﾄ, Port	
ON	IC1G PB3	0
OFF		1

Ⓑ M7 Lock	ｷﾞｰﾄ, Port	
回転 Rotation	IC1G PE1	L
停止 Lock		H

Ⓒ PC42	ｷﾞｰﾄ, Port	
遮光時 Blocked	IC1G PC3	L
透過時 Not Blocked		H

Ⓓ PC43	ｷﾞｰﾄ, Port	
遮光時 Blocked	IC1G PE0	L
透過時 Not Blocked		H

1075C35TAA

∗ C0d00

Step	Check Item	Result	Action
1	Slide out the Duplex Unit, move the Front/Rear Edge Guide Plates to other than their home positions, and slide the Duplex Unit back in. At this time, does the Front/Rear Edge Guide Drive Motor M10 rotate?	YES	• Check for overload.
		NO	• Change M10. • Change PWB-G or PWB-A.
2	Check the Front/Rear Edge Guide Plate Home Position Sensor PC42 as described below: 1) Block PC42. (The Front/Rear Edge Guide Plates are at their home positions.) 2) Select "IC Port Data Check".	___	_____
	3) Is the data of PC3 on PWB-G (Dup) (IC1G) "L"? (See the 6/8 screen on T-7.)	YES	• Change PWB-G or PWB-A.
		NO	• Change PC42.

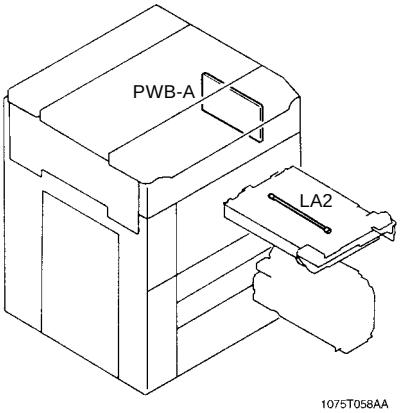
∗ C0d20

Step	Check Item	Result	Action
1	While turning the Screw Cam, move the Trailing Gate Unit to unblock the Duplex Gate Home Position Sensor PC43. When the Duplex Unit is slid into position in this state, does the Gate Drive Motor M9 rotate?	YES	• Check for overload.
		NO	• Change M9. • Change PWB-G or PWB-A.
2	Check PC43 as described below: 1) Block PC43. (The Trailing Gate Unit is at its home position.) 2) Select "IC Port Data Check".	___	_____
	3) Is the data of PE0 on PWB-G (Dup) (IC1G) "L"? (See the 7/8 screen on T-7.)	YES	• Change PWB-G or PWB-A.
		NO	• Change PC43.

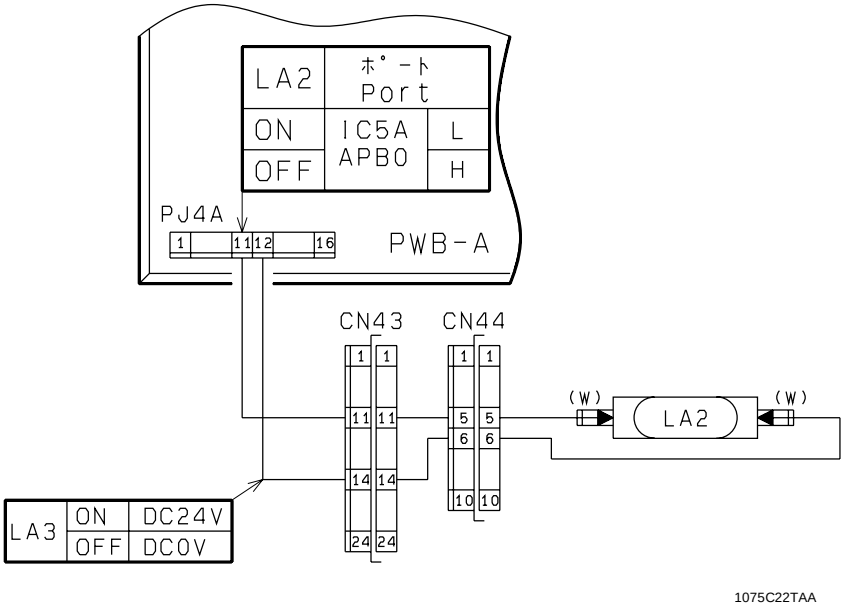
∗ C0d50, C0d51

Step	Check Item	Result	Action
1	Check the Duplex Unit Drive Motor M7 as described below: 1) Reset the malfunction. 2) Select "IC Port Data Check".	___	_____
	3) Is the data of PB3 on PWB-G (Dup) (IC1G) "1"? (See the 6/8 screen on T-7.)	YES	• Change PWB-G or PWB-A.
	4) By pressing the "Change" key to change the data from "1" to "0", does M7 rotate?	YES	• Check the rollers, gears, etc. for overload.
2	Do as described below to check the input signal (Duplex Unit Drive Motor Lock signal) when M7 is rotating: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of PE1 on PWB-G (Dup) (IC1G) "H"? (See the 7/8 screen on T-7.)	YES	• Change PWB-G or PWB-A.
		NO	• Change M7.

2-23. C0E00: Main Erase Lamp LA2's Failure to Turn ON
C0E01: Main Erase Lamp LA2 Turning ON at Abnormal Timing



Symbol	Name
LA2	Main Erase Lamp
PWB-A	Master Board



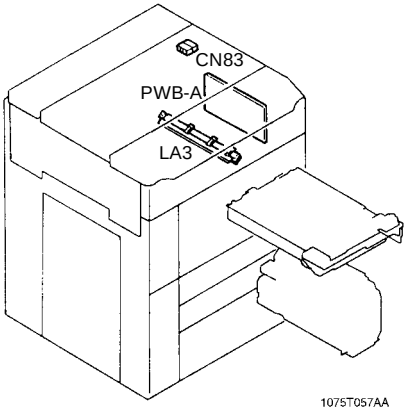
* C0E00

Step	Check Item	Result	Action
1	When the Start Key is turned ON, does the Main Erase Lamp LA2 light up?	YES	• To Step 3.
2	When the Start Key is turned ON, does the voltage across PJ4A-12 on PWB-A and GND change from DC0V to DC24V?	NO	• Change PWB-A.
3	Do as described below to check the Malfunction signal provided when the Main Erase Lamp LA2 is turned ON: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APB0 on PWB-A (IC5A) "L"? (See the 2/8 screen on T-7.)	YES	• Change LA2.
		NO	• Change PWB-A.

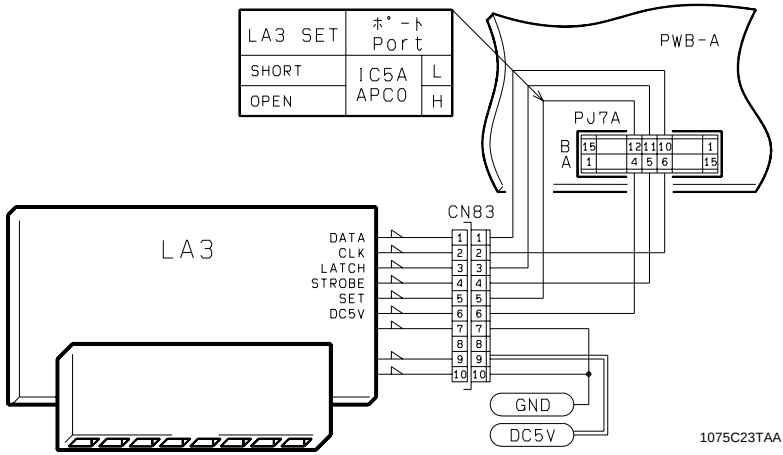
* C0E01

Step	Check Item	Result	Action
1	When the copier is in the standby state, is the Main Erase Lamp LA2 OFF?	YES	• To Step 3.
2	When the copier is in the standby state, is the voltage across PJ4A-12 on PWB-A and GND DC0V?	NO	• Change PWB-A.
3	Do as described below to check the Malfunction signal provided when the Main Erase Lamp LA2 is turned OFF: 1) Select "IC Port Data Check".	___	_____
	2) Is the data of APB0 on PWB-A (IC5A) "H"? (See the 2/8 screen on T-7.)	YES	• Change PWB-A.
		NO	• Change LA2.

2-24. C0E20: Image Erase Lamp LA3 Connection Failure

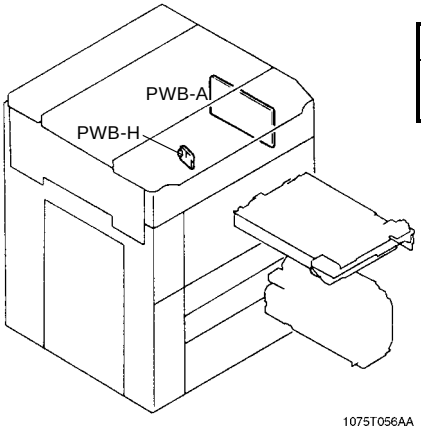


Symbol	Name
LA3	Image Erase Lamp
PWB-A	Master Board



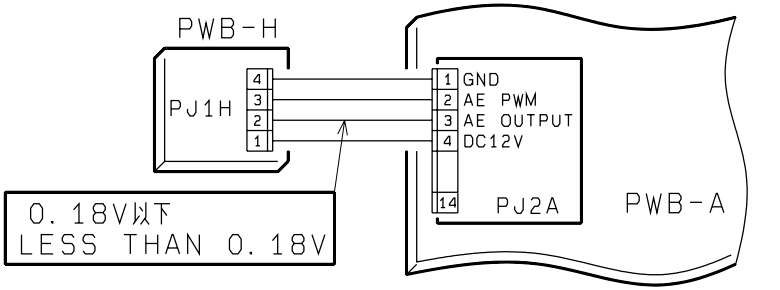
Step	Check Item	Result	Action
1	Check the Loading signal as described below: 1) Select "IC Port Data Check".	———	———
	2) Is the data of APC0 on PWB-A (IC5A) "L"? (See T-5.)	YES	• Change PWB-A.
2	Is PJ7AB and CN83 (10P) securely plugged into PWB-A?	YES	• Change LA3.
		NO	• Plug PJ7AB and CN83 in securely.

2-25. C0F10: AE Board PWB-H Malfunction



1075T056AA

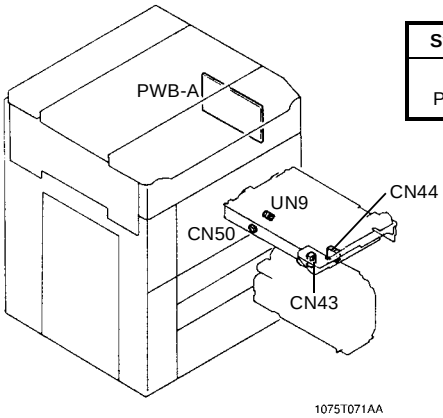
Symbol	Name
PWB-A	Master Board
PWB-H	AE Board



1075C24TAA

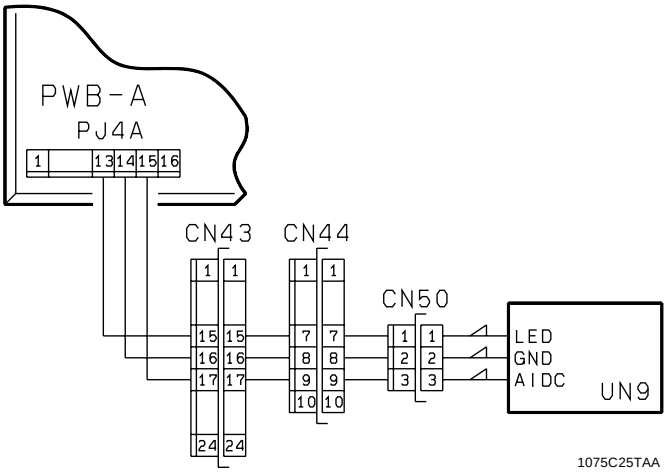
Step	Check Item	Result	Action
1	When the Scanner is at its home position, the Exposure Lamp is OFF, and the AFR-9 is closed, is the voltage across PJ2A-3 on PWB-A and GND 0.18V or less?	YES	• Check the connection of PJ2A and PJ1H. • Check the photo receiver of PWB-H for contamination, or change PWB-H.
		NO	• Change PWB-A.

2-26. C0F20: AIDC Sensor UN9 Variation Correction Failure
C0F21: AIDC Sensor UN9 Contamination Correction Failure
C0F23: AIDC Sensor UN9 Exposure Correction Failure



1075T071AA

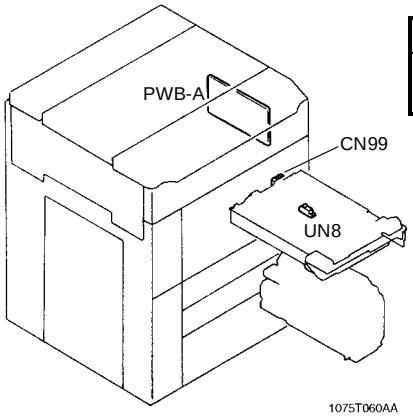
Symbol	Name
UN9	AIDC Sensor
PWB-A	Master Board



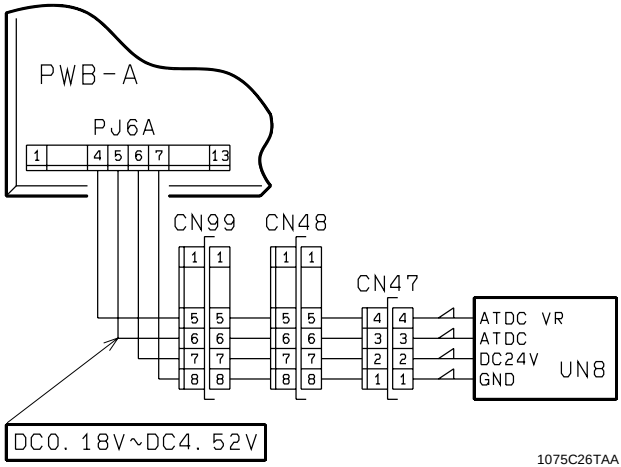
1075C25TAA

Step	Check Item	Result	Action
1	Are PJ4A, CN43 (24P), CN44 (10P) and CN50 (3P) plugged securely into PWB- A?	NO	• Plug them in securely.
2	Is the photo receptor/LED of the AIDC Sensor contaminated?	YES	• Clean the AIDC Sensor.
		NO	• Change UN9. If the failure recurs, change PWB-A.

2-27. C0F30: ATDC Sensor UN8 Failure
C0F31: ATDC Sensor UN8 Failure

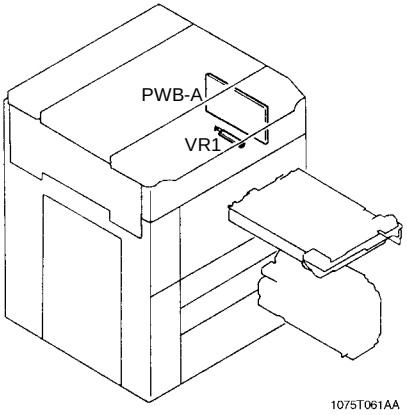


Symbol	Name
UN8	ATDC Sensor
PWB-A	Master Board



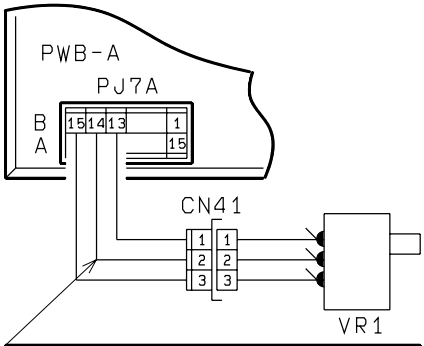
Step	Check Item	Result	Action
1	Is the value for "Set" of "ATDC Level" of "Level History" equal to the value given on the Adjust Label?	NO	• Enter the value given on the Adjust Label.
2	After the Power Switch has been turned ON, is the voltage across PJ6A-5 on PWB-A and GND in the range DC0.18V to DC4.52V?	YES	• Change PWB-A.
		NO	• Check that PJ6A and CN99 have been plugged in. • Change UN8.

2-28. C0F66: Manually Fed Paper Width Reference Position Failure



1075T061AA

Symbol	Name
VR1	Manual Feed Size Detecting Resistor
PWB-A	Master Board

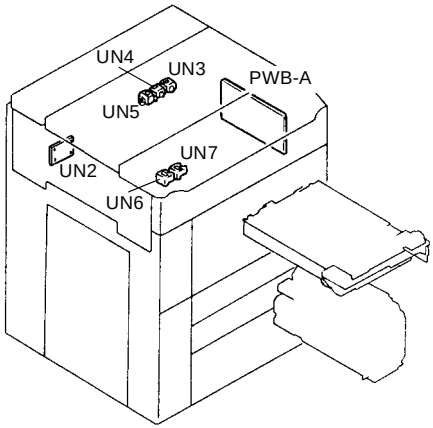


VR1	Max	DC2.35V以下 LESS THAN DC2.35V
	Min	DC2.35V以上 MORE THAN DC2.35V

1075C27TAA

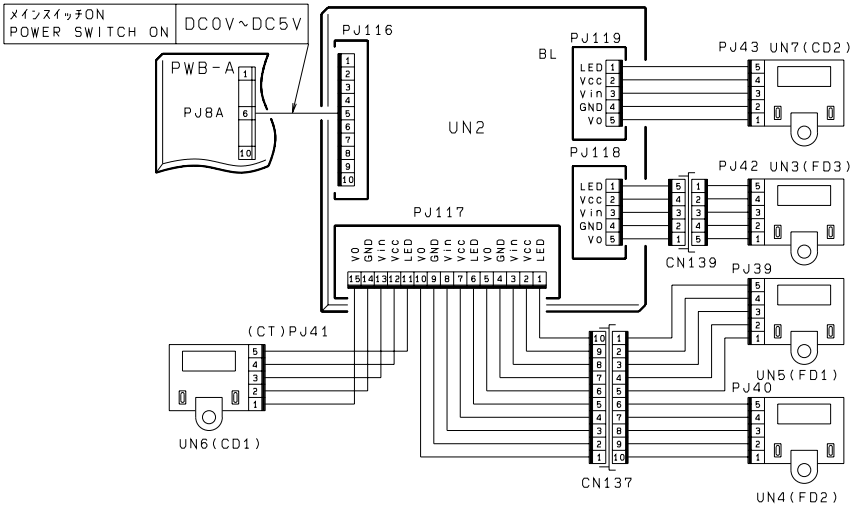
Step	Check Item	Result	Action
1	Is this malfunction code displayed when the function mode Fd-0 (Inch Area) or Fd-2 (Metric Area) is executed?	NO	• To Step 4.
2	Is the Manual Feed Guide Plate set to the maximum width position?	NO	• Move the Guide Plate to the maximum width position. • Check the Rack Gear.
3	Is the voltage across PJ7AB-14 on PWB-A and GND DC 2.35V or less?	YES	• Change PWB-A.
		NO	• Change the mounting position of VR1. • Change VR1.
4	Is the Manual Feed Guide Plate in the minimum width position?	NO	• Move the Guide Plate to the minimum width position. • Check the Rack Gear.
5	Is the voltage across PJ7AB-14 on PWB-A and GND DC 2.35V or more?	YES	• Change PWB-A.
		NO	• Change the mounting position of VR1. • Change VR1.

2-29. C0F02: Original Size Detecting Board UN2 Malfunction
C0FE1 to C0FFF: Original Size Detecting Sensor Failure



1075T062AA

Symbol	Name
UN2	Original Size Detecting Board
UN3	Original Size Detecting Sensor FD3
UN4	Original Size Detecting Sensor FD2
UN5	Original Size Detecting Sensor FD1
UN6	Original Size Detecting Sensor CD1
UN7	Original Size Detecting Sensor CD2
PWB-A	Master Board



1075C28TAA

* C0F02

Step	Check Item	Result	Action
1	Is the jumper connector fitted properly across J1 and J2 on UN2?	NO	• Change the position of the jumper connector.
2	Is PJ116 (CN2) plugged securely into UN2 and PJ8A into PWB-A?	NO	• Plug them in securely.
3	Is the voltage across PJ8A-6 on PWB-A and GND changing between DC0V and DC5V?	YES	• Change PWB-A.
		NO	• Change UN2.

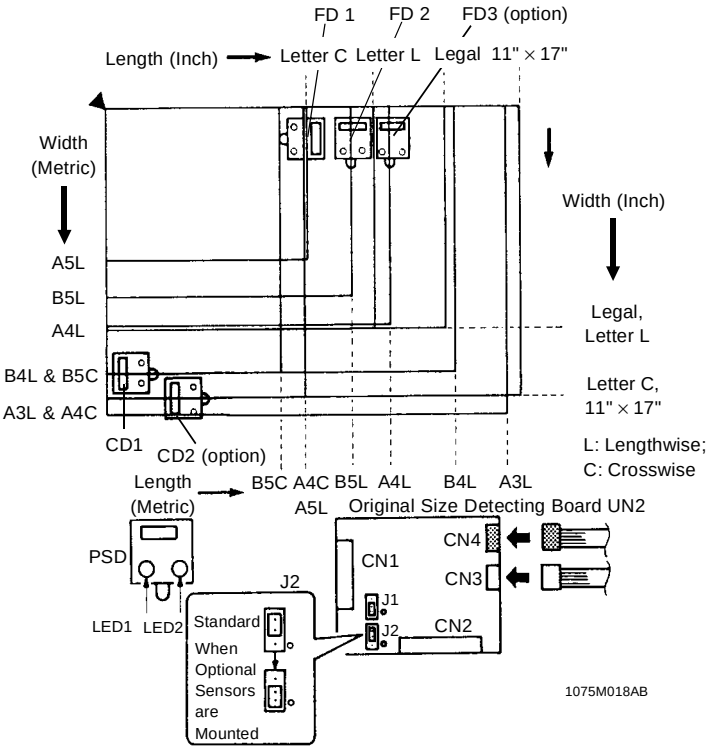
* C0FE1 to C0FFF

Step	Check Item	Result	Action
1	Is the jumper connector fitted properly across J1 and J2 on UN2?	NO	• Change the position of the jumper connector.
2	Is each Original Size Detecting Sensor installed at the correct position?	NO	• Reinstall.
3	Is the malfunction code redisplayed after the corresponding Original Size Detecting Sensor has been changed?	YES	• Change UN2 or PWB-A.

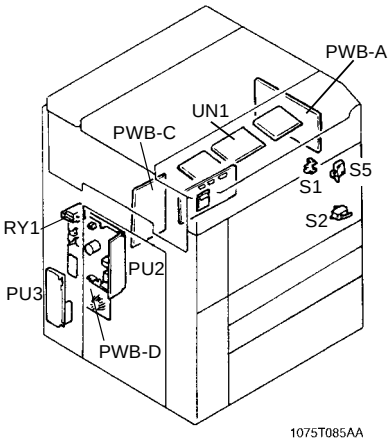
<Sensor Locations>

Standard: CD1 (UN6), FD1 (UN5), FD2 (UN4)
Optional: CD2 (UN7), FD3 (UN3)

NOTE: If the optional sensors are installed, set Jumper Connector J2 on UN2 as illustrated below, connect CN3 and CN4 on UN2, and run the F7 operation.



3. Power is not Turned ON



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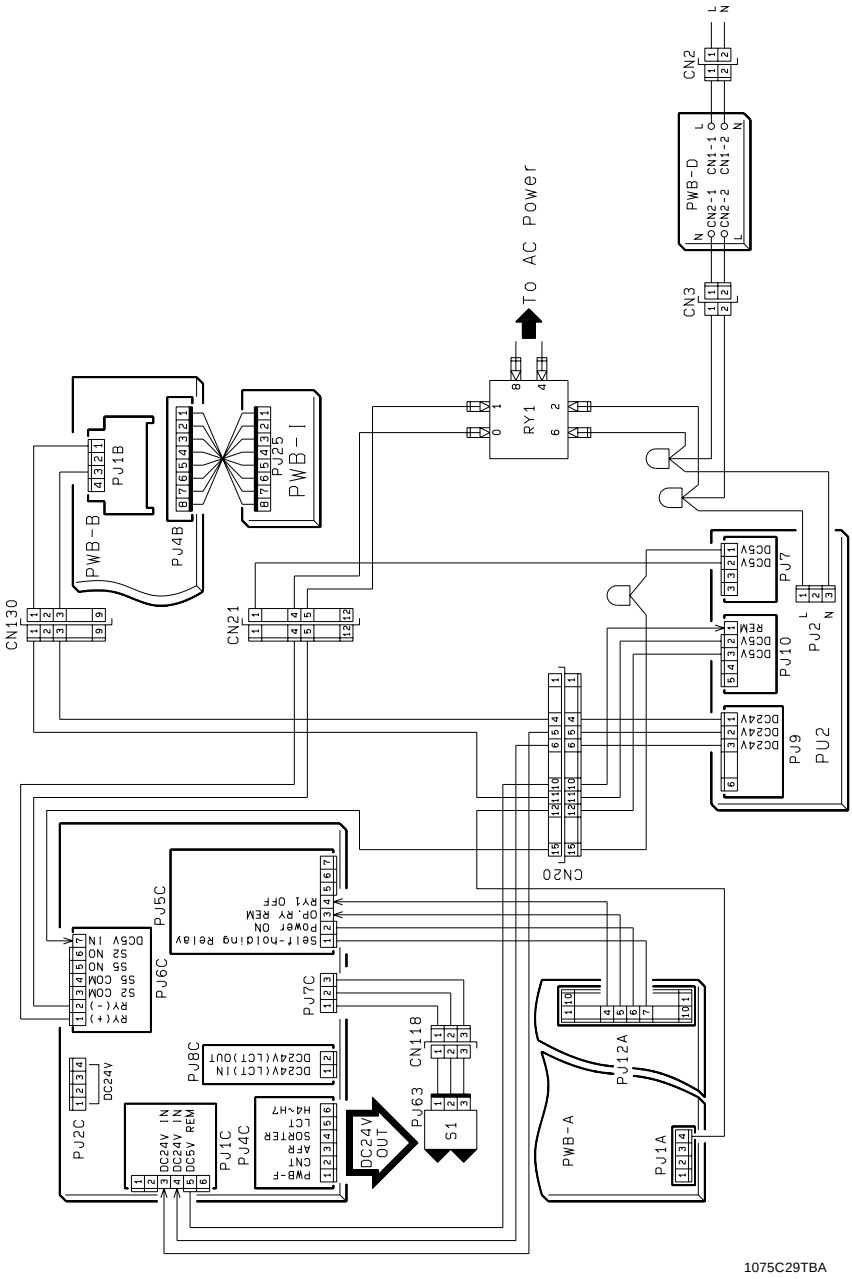
Symbol	Name
S1	Power Switch
S2	Lower Front Door Interlock Switch
S5	Right Door Interlock Switch
RY1	Main Relay
UN1	Control Panel
PU2	DC Power Supply 1
PWB-A	Master Board
PWB-B	MSC Board
PWB-C	DC Power Supply Board
PWB-D	Noise Filter Board

Symptom	Step	Check Item	Result	Action
RY1 is not turned ON.	1	Is there an AC voltage (power supply voltage) across PJ2-1 and -3 on PU2?	NO	• Check the circuit breaker and power supply voltage. If they check okay, change PWB-D.
	2	Is the voltage across PJ9-2/-3 on PU2 and GND DC24V?	NO	• Check the fuse on PU2. If it checks okay, change PU2.
	3	When S1 is OFF, is the voltage across PJ7C-2 on PWB-C and GND DC24V?	NO	• Change PWB-C.
	4	When S1 is ON, is the voltage across PJ7C-1/-3 on PWB-C and GND DC24V?	NO	• Check S1, S2 and S5.
	5	When S1 is ON, is the voltage across PJ1C-5 on PWB-C and GND DC24V?	NO	• Change PWB-C.
	6	When S1 is ON, is the voltage across PJ4-1 on PU2 and GND DC5V?	NO	• Change PU2.
	7	When S1 is ON, is the voltage across PJ10-3 on PU2 and GND DC5V?	NO	• Change PWB-A.
	8	When S1 is ON, is the voltage across PJ6C-1/-2 on PWB-C and GND DC24V?	NO	• Check RY1.
Though RY1 is turned ON, no control panel indicators light up.	1	Is the voltage across PJ10-2 on PU2 and GND DC5V?	NO	• Change PU2.
	2	Is the voltage across PJ9-1 on PU2 and GND DC24V?	NO	• Change PU2.
	3	Are all PJs on PWB-B plugged securely into position?	NO	• Plug them in securely.
	4	Is PJ25 plugged securely into PWB-I?	NO	• Plug it in securely.
	5	Is PJ12AA plugged securely into PWB-A?	NO	• Change PWB-A, PWB-B, UN1 or PWB-I.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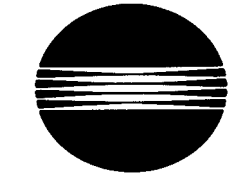

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